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BUREAU OF EDUCATION.

No. 1-1881.

THE CONSTRUCTION OF LIBRARY BUILDINGS.

**WASHINGTON:
GOVERNMENT PRINTING OFFICE.
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LETTER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., March 15, 1881.

SIR: The very important place which libraries occupy and are to occupy in the public culture of this country makes all thoughtful labor in their behalf of great interest. They are springing up over the country in many places, and those having 300 volumes or more number nearly, if not quite, four thousand, as reported to this Office.

Buildings for their storage and care are being erected or adapted in large numbers, and serious errors, involving great expense, are perpetrated, whereby their safety is imperilled, their convenient use hindered, and their increase in capacity almost forbidden.

Librarians have not been silent in these matters, but often the mischief has been done before the professional custodian of the books is employed, and thus before the needs of the library and of the community it serves are known.

At a recent meeting of librarians in this city, Mr. William F. Poole, the accomplished and energetic librarian of the Public Library of Chicago, read a paper on the construction of library buildings which excited marked attention and was received with great approval. The author has furnished this Office the article, on condition of its early publication, and many librarians of eminence (among whom I may mention Mr. A. R. Spofford, of the Library of Congress) have expressed their desire to see it speedily and widely circulated.

Mr. Poole does not pretend to formulate rules which must be rigidly followed, but to set forth the conditions for library buildings which experience has shown to be indispensable. These can be applied to the housing and shelving of every collection, be it great or small, by a moderate exercise of common sense.

This Office has always appreciated the function of the library in public education, and it is only in accordance with its past practice, so heartily approved of by the public, that I request your sanction for the publication of Mr. Poole's paper as a circular of information.

I am, sir, very respectfully, your obedient servant,

JOHN EATON,
Commissioner.

The Hon. the SECRETARY OF THE INTERIOR.

Publication approved:

S. J. KIRKWOOD,
Secretary.
5-6

THE CONSTRUCTION OF LIBRARY BUILDINGS.

By WILLIAM F. POOLE, *Librarian of the Chicago Public Library.*

The subject of library architecture came up for consideration at the last meeting of this association in Boston by having our attention directed to the construction of larger buildings than we have had experience with, of which several will be built in this country during the next five years. There was no time for a thorough discussion, and it was by common consent agreed that the more deliberate consideration of the subject should be resumed at the Washington meeting.

In the course of my remarks on that occasion, in which I made some suggestions as to the construction of this class of buildings, I said: "I know of no better rule to be observed in the library architecture of the future than this: avoid everything that pertains to the plan and construction of the conventional American library building." My present purpose is to explain and illustrate what I then could treat only in outline, and do some construction on my own account. I am convinced that the conventional style of library architecture is very faulty, and that we shall never have a general reform until better principles are applied to the construction of the largest buildings. The smaller libraries are constantly copying and perpetuating the confessed faults and worst features of the large libraries.

By the "conventional American library building" I mean the style of which the Boston Public Library, Boston Athenæum, Astor Library, Cincinnati Public Library, Baltimore Peabody Institute, Library of Congress, and others which I might mention are the representative types. All these buildings have lofty rooms and a large open space surrounded with alcoves and galleries which are used for the storage of books. Although these buildings have a variety of detail in other respects, this is the conventional style of which I speak. I might illustrate what I have to say by exhibiting the interior view of any one of them. I have selected, however, for this purpose the latest, the best, and the most carefully planned of all these buildings—that of the Peabody Institute of Baltimore. Here some of the objectionable features of the older buildings have been avoided and useful appliances and devices have been introduced. It is, however, with the general plan we are now concerned.

The main library hall, of which I show you a ground plan (Fig. 1) and an interior view (Fig. 2), is 84 feet long, 70 feet wide, and 61 feet high. On the front is the reading room, 72×36 feet, and in the rear a work

room, $38\frac{1}{2} \times 20$ feet, and the librarian's room, 18×20 feet. The alcoves are six stories high; they project 18 feet from the walls, and there is a passage way two feet wide next to the wall, for access between the alcoves, which are 12 feet apart. A skylight in the roof and two small windows in each alcove furnish ample light. The present shelving capacity of the room is 150,000 volumes. It is certainly a stately and im-

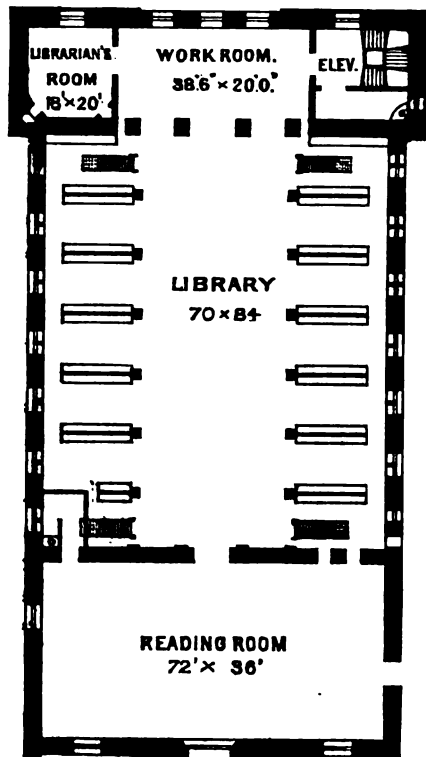


FIG. 1.—Ground plan of the Peabody Institute Library Hall.

posing structure; and if we will banish from the mind all considerations of convenience, utility, and economy, and regard its architecture simply as an æsthetic recreation, we may pronounce the picture before us beautiful. It is the nave and aisles of a Gothic church of the Middle Ages, with the classic associations of five centuries about it, brought down to the practical uses of a modern library structure.

There are some objections to this venerable and conventional arrangement, and I will mention:

1. The wastefulness of space in this central portion of the building. Books are shelved only in the aisles; the nave is empty, and serves no other purpose than contributing to the architectural effect. Is not this an expensive luxury? Here is a solid block of vacuity, 84 feet long, 34 feet wide, and 61 feet high—more than half the capacity of the room—which can be applied to no possible use

in the storage of books. The floor can be used, and is used in most of the libraries of this class, as a reading room and as a general promenade for tramps and sight-seers. It is unfit, however, as we shall presently see, for a reading room; and the trustees of the Peabody Institute have had the good sense to provide another and suitable room for this purpose. The storage of books, therefore, is the only practical use to which this room is applied, and half its capacity is wasted in order to secure architectural effect.

2. The second objection I will mention is the difficulty and expense of heating such a room as this. In our northern climate fires are kept for six or seven months of the year, and for four of these months large fires. Hot air from a register or radiator rises to the ceiling like a balloon, and the upper strata become intensely heated before the lower

stratum, in which we live, has a comfortable temperature. This arrangement is a wasteful expenditure of heat. In the Cincinnati Public Li-



FIG. 2.—Peabody Institute Library Hall.

brary the unequal distribution of heat is partially obviated by warming the marble floor by means of steam pipes beneath the floor and dra-

ing off the heated air of the upper galleries by ventilation or cooling it in the lantern of the roof, which in winter serves as a refrigerator. This is done, however, at an enormous expense for fuel. The librarian informs me that 500 tons of coal are consumed in the library furnaces in an average season. He has sent to me tests of the temperature in different parts of the library, which he made on December 29, when the thermometer outside indicated 3° below zero, and also on the evening of January 4, when 120 gaslights were burning, which indicate that the temperature on both occasions was fairly equalized. Four years ago a friend of mine visited this library, and, observing the intense heat in the upper galleries, procured a thermometer and ascertained the temperature near the floor and in the upper gallery. Six feet from the floor it was 65°, and in the upper gallery 124°. Mr. Dyer, librarian of the Mercantile Library of St. Louis, writes to me, under date of February 3, 1881, that the temperature of his library hall on that day, 1 foot above the floor, was 64°; 10 feet above, 74°; 19 feet above, 82°, indicating that the increase of heat was about one degree for every foot of elevation. He adds that, during the summer, the mercury, two feet below the ceiling, frequently reaches 140°.

3. I object, in the third place, to the shelving of books in galleries *under any circumstances*, and especially in this instance, where the alcoves are piled one upon another, six stories high. I may group my objections under three heads:

(a) Because galleries are a wasteful expenditure of the physical strength of attendants in climbing stairs and of the time of readers in waiting for their books.

(b) Because the bindings of books in galleries perish from heat, and the higher the books are above the floor the more active is this destructive agency. Leather is an animal tissue, and will not, like linen, cotton, paper, and other vegetable substances, sustain without injury a higher temperature than we find agreeable to ourselves. Books cannot live where men cannot live. They are more nearly allied to us as congeners than we are wont to suppose. In excessive heat the leather of bindings slowly consumes and its life departs. If we put our friends in torment, they prove to us the doctrine of annihilation. Bindings perish from other causes, one of which is the presence of sulphuric acid in the leather. This acid is used in a process of the manufacture called "clearing," and from haste or negligence is not thoroughly extracted before the leather is finished. The sulphurous residuum of gas combustion is also said to be injurious to bindings. The burning of gas, I have no doubt, is very injurious to bindings in libraries of this construction, and chiefly because it raises the temperature in the galleries. In libraries bindings have no such aggressive and destructive an enemy as excessive heat. All the large libraries in this country and in Europe are lamenting its ravages, and often without a suspicion of the real cause of the deterioration. A well known architect of Boston recently called upon me, and, conversing

upon this subject, which was new to him, said that he frequently went into the galleries of the Boston Athenæum to consult books, and when he came down found his clothes covered with a fine red powder. He asked if I knew what that powder was. I replied that I had often observed the same fact in the same locality, and I had no doubt that it was the *ashes* of the bindings, which had been consumed by excessive heat.

Books should, therefore, be shelved in the coolest part of the room, where the air is never likely to be overheated, which is near the floor, where we ourselves live and move. In the private libraries of our residences a mistake is often made in carrying the shelving of our book-cases so high that they enter the upper and overheated stratum of air. If any one be skeptical on this point, let him test, by means of a step ladder, the condition of the air near the ceiling of his common sitting room on a winter evening when the gas is burning freely. The heat is simply insufferable.

(c) Besides the reasons already given, I object to the shelving of books in galleries because it is unnecessary. The 150,000 volumes, the present capacity of the Peabody Institute Hall, can all be shelved near the floor, where convenience in reaching them and their preservation require them to be. In order to exhibit this fact to the eye I ask your attention to this scale drawing of the floor (Fig. 3) with the book cases so inserted. The folios and quartos will be shelved in wall cases extending around the room, and the royal octavos and smaller volumes in double cases, open on both sides, three feet apart, the side alleys being three and a half feet wide, and the central alleys four feet wide. Instead of having two

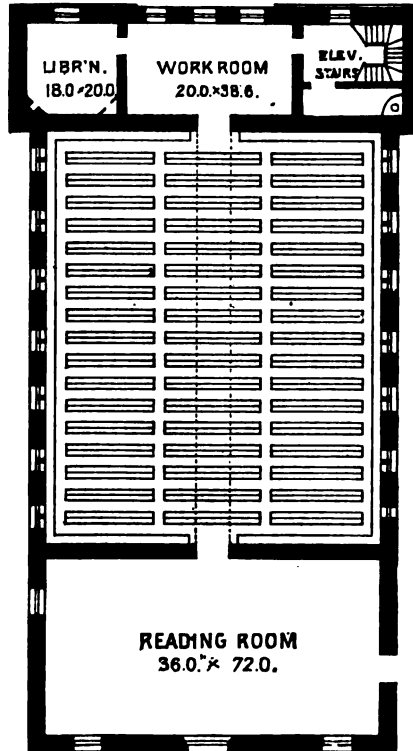


FIG. 3.—Ground plan of Library Hall with shelving supplied.

alleys four feet wide, the better arrangement for this room would be to have a central alley five feet wide, which would give direct communication with the reading room from the work room and librarian's room. The cases will not be so high but that a person of average stature can reach any book without step or ladder, say $7\frac{1}{2}$ feet.

The rule for estimating the shelving capacity of any room of consid-

erable size arranged in this manner is to allow 25 volumes for each square foot of flooring. In this instance the capacity is 27 volumes per square foot, because the cases are longer than they are usually made. The shelving capacity of these cases is 160,050 volumes.

As I am to use further on, in some construction of my own, the estimate that each square foot of flooring will shelve 25 volumes, I will here explain how it is obtained. The double cases are 18 inches wide and of any desired length, say 16 feet. The space which one case will require is a rectangle, of which the longer side is the length of the case plus the width of the alley (usually four feet), or 20 feet. The shorter side is the width of the case (18 inches), plus the distance between the cases (three feet), or $4\frac{1}{2}$ feet. One case, therefore, requires 90 square feet of flooring. The area of shelving on one side of the case is $16 \times 7\frac{1}{2}$, or 120 square feet; on both sides, 240. The conservative rule usually adopted for estimating shelving capacity for books of all sizes which go to make up a general library is ten volumes for each square foot of front area. The capacity of the case requiring 90 square feet of flooring is, therefore, 2,400 volumes; and one square foot will shelve 26.6 volumes. Twenty-five volumes, therefore, to the square foot is a reasonable estimate.

By reducing the width of the alleys from 4 to 3 feet and the distance between the cases from 3 to $2\frac{1}{2}$ feet (in the stack room of Harvard College Library the distance is 2 feet 4 inches), the shelving capacity could be considerably increased. I have preferred to allow liberal spaces between the cases, and not to force the principle of contraction to its utmost limit. The estimate of 25 volumes to each square foot applied to large rooms brings out such enormous results as to be almost incredible.

We have now, in theory at least, shelved all the books which these six tiers of alcoves will contain upon the floor, and have space for 10,000 volumes more. We have, also, overhead, 61 feet of air and light, which is more than we need. Sixteen feet is better than 60, for it is enough. Three other floors, each of the same capacity, the rooms being 16 feet high in the clear, would fill the 61 feet and about 9 feet more. In the three upper stories the space which on the lower floor is appropriated to the work room and the librarian's room could be used for bookcases, and would shelve 76,800 volumes. The entire storage capacity of the building would therefore be 717,000 volumes. This arrangement, when the library comes to need so much shelving space, would allow of a classification of its books into four grand divisions or departments of knowledge, each one of which would have a floor and reading room to itself. The reader, then, by means of a modern elevator, would go directly to the floor on which the books in his own range of study are stored.

4. Returning to my general series of objections to the conventional style of library architecture, I mention, in the fourth place, the difficulty of getting about from one part of the library to another. Not to speak further of the burden of climbing stairs, it is necessary, in order to

move from one gallery to another on the opposite side, to travel on the outer edge of a parallelogram, when the economies of locomotion require that we move as nearly as we can in straight lines, and from the centre outwards. Observe the ease with which any case of books can be reached on this floor plan and the difficulty in the conventional plan of passing from a lower alcove to one in a remote corner of the upper gallery. In a popular circulating library it is positively cruel to send attendants for books with such an arrangement for shelving as this; and to station them in the overheated and stifling air of galleries to answer calls for books is even more inhuman.

5. I object, in the fifth place, to this plan of construction, on account of its insecurity from fire. In an interior finished with wood, no arrangement could be more skilfully devised for favoring the destructive operations of fire than a series of alcoves piled one upon the other six stories high, with every facility for draught—unless it be a pile of empty packing cases. When a building of this kind takes fire the work of the insurance adjuster is very simple, for it is a total loss of the whole library. Water, heat, and smoke are as fatal to books as fire itself. The Library of Congress has twice been burned; Harvard College Library, once; so also the Chicago Historical Society's Library, in what was thought to be a fire proof building; and the Birmingham Free Library, which several of us visited little more than three years ago, has since, with its great Shaksperian and Cervantes collections, been burned with fire, and nothing of its more valuable treasures saved. The class of library buildings which we are now considering will contain books, manuscripts, and public records of inestimable value which money cannot replace. To lose one of these libraries by fire would be a national calamity. After all that may be done in the way of external protection, there is still a large risk from internal accidents.

On a summer evening, a few years ago, a fire broke out in one of the rooms of the Cincinnati Public Library after the building had been closed for the night. It was fortunately discovered and extinguished before much damage was done. The origin of the fire was at first a mystery; but it soon appeared that the painters, who had been finishing the woodwork of the room, had left their oiled rags on the ledge of one of the bookcases when they quit work at night, and these had ignited by spontaneous combustion and had set the bookcases on fire. The Birmingham Library was set on fire in the daytime by the lamp of a careless plumber who was thawing out the gas pipes. A fire may start in a large library at any time by accidents as unusual as these; and it were a shame if, from errors of construction, it be allowed to range through the whole building. Hence, buildings such as we are considering should be constructed in a series of fire proof compartments, in order that the fire may be confined within narrow limits. I am not aware that this precaution ever has been taken. The principle, however, has been applied to the great ocean steamers, and many a ship has

been saved by having its hull divided into several water tight compartments. A practical method of securing this protection will be considered later in our investigation.

6. In all the libraries of this class in our country, except the Peabody Institute, the open space in the nave of our old Gothic church is used as a general reading room; and in the Peabody Institute, where another reading room has been provided, tables have been placed in front of each alcove, cutting off public access to them, at which students may study if they choose.

There are several objections to the use of this open space for that purpose. It is too public and bustling a place for quiet study. Here the business of the library is done. Readers are applying to the custodians for books and attendants are running about on the marble floor delivering their orders and taking new instructions. The emptiness overhead is appalling. Crowds of visitors and sight-seers are marching by, admiring the architecture, expressing their views on what they see, and asking each other in audible tones if they suppose the librarians have read all these books and know what they contain. One engaged in study hears remarks which were not intended for his ears and sees sights which distract his attention. I said at our meeting in Boston: "It is like attempting to study in Scollay square or on a mall of Boston Common." Those of you who have visited the reading room of the British Museum will remember the strict precautions which are observed to secure perfect quietude in that sacred precinct. Applications for books are made in writing; and if it be necessary for readers to speak to the attendants, the conversation is in a tone so subdued that no reader can hear it. No person can enter the room unless it be for study, and he must show his ticket. The American librarians who, three years ago, were the guests of Mr. Garnett, the superintendent, were taken to an elevated position overlooking the floor, and the details of the arrangements were explained in whispers.

7. The seventh objection I will mention to this style of architecture is the difficulty of enlarging it. How is this building to be enlarged when the growth of the library demands an extension? Shall it be extended heavenward, and more galleries be piled on these, with more wasted space in the nave, greater difficulty of access to the books, and more extravagance in the heating? Shall transepts and a chancel be built, so that the plan will represent the true ecclesiastical cross? However pious these improvements and gratifying to the taste of the refined architect, they are expensive, they involve demolishing much that has already been constructed, and they will give but little additional room. Why library architecture should have been yoked to ecclesiastical architecture, and the two have been made to walk down the ages *pari passu*, is not obvious, unless it be that librarians in the past needed this stimulus to their religious emotions. The present state of piety in the profession renders the union no longer necessary and it is

time that a bill was filed for a divorce. The same secular common sense and the same adaptation of means to ends which have built the modern grain elevator and reaper are needed for the reform of library construction.

Any plan for library construction is faulty which does not foresee and provide for future enlargement. The Boston Public Library, with a building like this, has for ten years been struggling with the problem of enlargement, and has at last solved it by resolving to abandon the building and the site with all the ingenious devices and expensive improvements made upon the premises during the past quarter of a century. Last winter the city council of Boston petitioned the legislature of Massachusetts for the gift of a block of land in the Back-Bay District for the Public Library, and the petition was granted. Much trouble and expense had been saved if the hopeless and temporary schemes of enlargement, such as dividing the alcoves by double bookcases, had been abandoned years ago. There is probably no library building in the country which has been so much admired (by non-residents) as that of the Boston Library, and none whose worst features have been so generally copied by the smaller libraries. The Astor Library makes its enlargement by erecting another and similar building on an adjacent lot. Its third building is now in process of erection.

The trustees of the Peabody Institute have provided for the increase of its shelving capacity in the same manner as was done in Boston, by dividing its alcoves with double cases. In anticipation of this change two small windows for each alcove were originally made in the side walls, which will light both sides of the double cases when they are built. It is obvious that this arrangement will be a blemish to the architectural effect of the interior. These many windows serve in winter, by their leakage and radiation, to reduce the excessive temperature of the upper galleries; but it is done at an enormous waste of heat.

8. My eighth objection to this sort of library construction is its great cost, compared with a simpler, less pretentious, and more convenient style. The inclosure of so large and high a room as this requires that the outer walls, the girders, and the roof be of unusual weight and cost. The lantern or skylight in the roof, which ought to be wholly of iron and glass, is expensive. The structure whose plan is before you cost \$342,000, which includes the cost of two lecture rooms beneath and two art rooms above. The Boston Public Library building cost \$325,000. The Cincinnati Public Library, with a capacity of 250,000 volumes, cost \$350,000. The two structures of the Astor Library, and the third not yet completed, all with a capacity of 300,000 volumes, will cost \$398,000. It is a practical question, allowing the plans of these buildings to be the best that can be devised, whether these are not too large sums to be expended for such limited accommodations. Is it not lavishing upon the casket what ought to be spent on the jewels?

I will not detain you longer in discussing this part of my subject. I

think I have said enough to justify the statement with which I started out, that I know of no better rule to be observed in the library architecture of the future than this: Avoid everything that pertains to the plan and construction of the conventional American library building.

Up to this point I have freely passed judgment upon the plans and buildings of others. I am now to do some construction of own. "It is easy," says the old proverb, "to criticise; it is not easy to construct." I have no pride of opinion that can be wounded by any strictures which may be made upon my plans. I offer them to be criticised. My only purpose is to secure better principles in our library architecture, and this can best be done by a free interchange of opinions held by practical librarians. I therefore cordially invite any librarian, architect, or other person present whose building or plans I have criticised, to take his full measure of revenge upon my work when I have concluded.

In the plans I now lay before you, I propose, on a lot of ground 200 feet square, the construction of a building for a reference library of 1,000,000 volumes; and, in order that the library may grow, I expect, upon the same lot, without cramping the space for storage or changing anything that has been constructed, to provide for 2,000,000, and later for 3,000,000, volumes. By doubling the size of the lot to 400 × 200 feet, 6,000,000 volumes can be provided for. It is proposed to erect no more of this building than is needed to meet present wants and that additional compartments of similar construction shall be built from time to time as they are required. In devising this plan I have sought to secure the following results:

1. That the building shall be constructed in compartments and as nearly fire proof as is possible, so that, if fire starts, it shall be confined in the compartment in which it originates and the rest of the library be saved.
2. That waste room shall be reduced to a minimum; that convenience and utility shall never yield to architectural effect; and that the building shall be easily and economically heated.
3. That more spacious and convenient quarters than we now have shall be provided for the administrative department and the working rooms of the library.
4. That there shall be no climbing of stairs for books and no over-heating of bindings in galleries.
5. That greater facility of communication between different parts of the library shall be secured, and that the books shall be shelved near the floor, and no higher than they can be reached without step or ladder.
6. That quiet accommodations shall be provided for readers; that separate rooms be assigned to special subjects and furnished with such special arrangements as they need for their storage and use.
7. That the cost of construction shall be kept within reasonable limits;

and that convenience, utility, and economy shall be the controlling principles in the design.

I do not claim that my plan is the only one that will meet these requirements, but simply that it is one such plan; and, if it serves no other purpose, it may suggest a better design. It has at least the novelty, if not the merit, of being a radical departure from the beaten track.

My first requirement is a lot of ground 200 feet square, surrounded on all sides by streets, or, what is better, by other open space. On the middle of the side most appropriate for the main entrance I place the

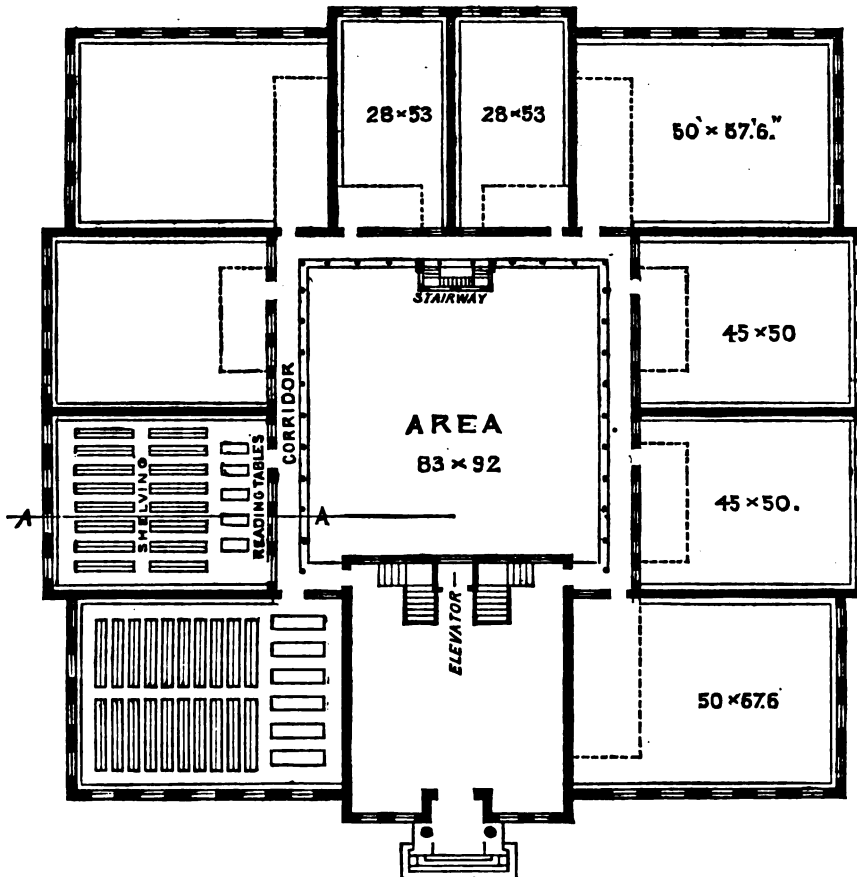


FIG. 4.—Ground plan of proposed library building.

central building; 60 feet front and 75 feet deep, which will be wholly devoted to the administrative superintendence and work of the library. Here will be the offices of the librarian and heads of departments, the catalogues, the most general works of reference, and here the business of the library will be done. Here will be apartments for the cataloguers and for unpacking and arranging books. The bindery will occupy the upper story.

The books will be stored, not as now in one general repository, but in a series of rooms thrown out as wings from the central building, and extending around the lot. These rooms will be 50 feet wide, 16 feet high, and as long as it is convenient to make them. The width of the wings will be determined by the space that can be well lighted by side windows and that can be spanned by iron girders without pillars. Ten of these rooms are indicated on the plan before you, and, carrying the same construction four stories high, there will be 40 of these rooms in the whole structure. Each of the rooms will contain the books on some special subject, or, in the early stage of growth, several related subjects. One room will be devoted to the fine arts, and will have the proper cases, tables, and other appliances for shelving and studying the large and expensive illustrated works which belong to such a collection. Another room will have the mechanic arts, with such other arrangements as are required. Another room will contain history, and, when the library has grown to a million volumes or more, perhaps American history only. Political economy and social science will be found in another room, and so on through the different classifications of knowledge. These rooms will have no alcoves nor galleries, for alcoves I regard as useless and galleries an unpardonable nuisance. The books

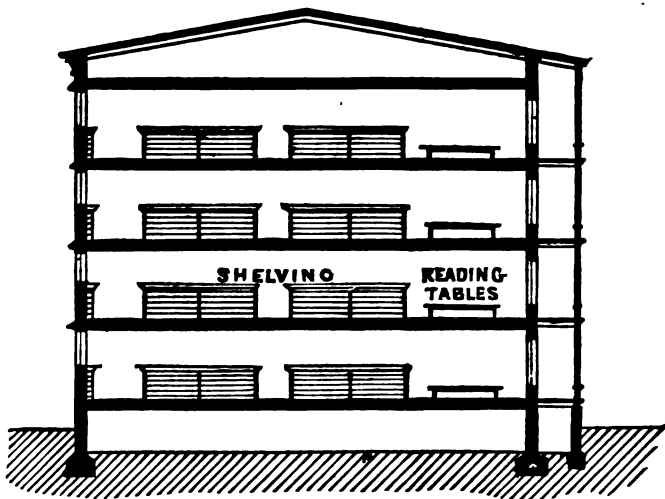


FIG. 5.—Sectional elevation on line A A of Fig. 4.

will be shelved in wall cases and double cases not higher than a person can reach. The plan of shelving the books is the same which I have already described in speaking of the floor plan for the Peabody Institute. High light will be taken on the exterior side from windows above the wall cases. Each room will have light from two sides, and will be furnished with tables, chairs, and all the conveniences for quiet study. The reading desks will be on the inner side where there are no wall cases, and hence the windows looking into the quadrangle will be of full

length. The attendant in charge will have an opportunity to become acquainted with the books in his department and competent to assist readers in their investigations.

There is, therefore, no occasion or need of a general reading room other than the one in which are kept the encyclopædias, dictionaries, and the general works of reference. Special dictionaries may be shelved with their own departments, and to some extent general works of reference may be duplicated. When it is necessary, books can be loaned from one department to another, as they are now sent to the reading room. The building will be supplied with telephones and all the modern appliances for communication. As a general rule, readers will go to the room which contains the class of books which they wish to study.

As a protection from fire, each room used for the storage of books is cut off from every other room by a brick fire wall extending through the roof. The only access to these rooms will be by a light iron corridor at each story, seven feet wide, running around on the inside of the quadrangle, as indicated on the plan (Fig. 4). In winter these corridors may be inclosed by glass windows, which can be removed in the summer. The long windows in the quadrangle will give abundant light, notwithstanding the small amount which will be intercepted by the corridors. Every floor will also be made thoroughly fire proof. They will be laid on rolled iron beams supported by lattice girders, the space between the beams being filled with porous terra cotta, and the beams will be covered with concrete, upon which the flooring will be laid. The girders will also be protected by an ornamental covering of terra cotta, which will serve as a decoration for the ceiling of the room below. Without such covering, iron, in case of fire, is the most treacherous of all building material. If by accident fire should start in any one of these forty rooms, it could not endanger the safety of the other thirty-nine.

This arrangement of access to the rooms by means of corridors serves another purpose besides being a protection from fire. It is a protection against tramps and sight-seers, who would be marching in crowds through these wings if there were a passage way through them, as in the Louvre at Paris. Such a passage way would take up a good deal of room, would interfere with the arrangements for shelving the books, and would disturb the quietude which is needed for study. It is a delusion to depend on iron doors between the rooms as a protection from fire; for, in such an emergency, iron doors are always found to have been left open.

In the rear of the central building will be an elevator, which will land readers upon the level of any of the corridors. As the central building will not be used for the storage of books, it will have stairways, besides the elevator, for reaching its several stories. In case of accident to the elevator, the stairways can be used for access to the upper corridors. On the rear side of the quadrangle there will be a stairway connecting the several corridors. If time allowed I might speak of other details of construction.

We will now consider the storage capacity of this building, and first of a single floor. Deducting the space covered by the walls, there are 25,250 square feet of flooring in these wings. Deducting still further one-fifth of this space (or 5,050 feet) for the tables and other accommodations of readers, we have 20,200 feet which can be used for book-

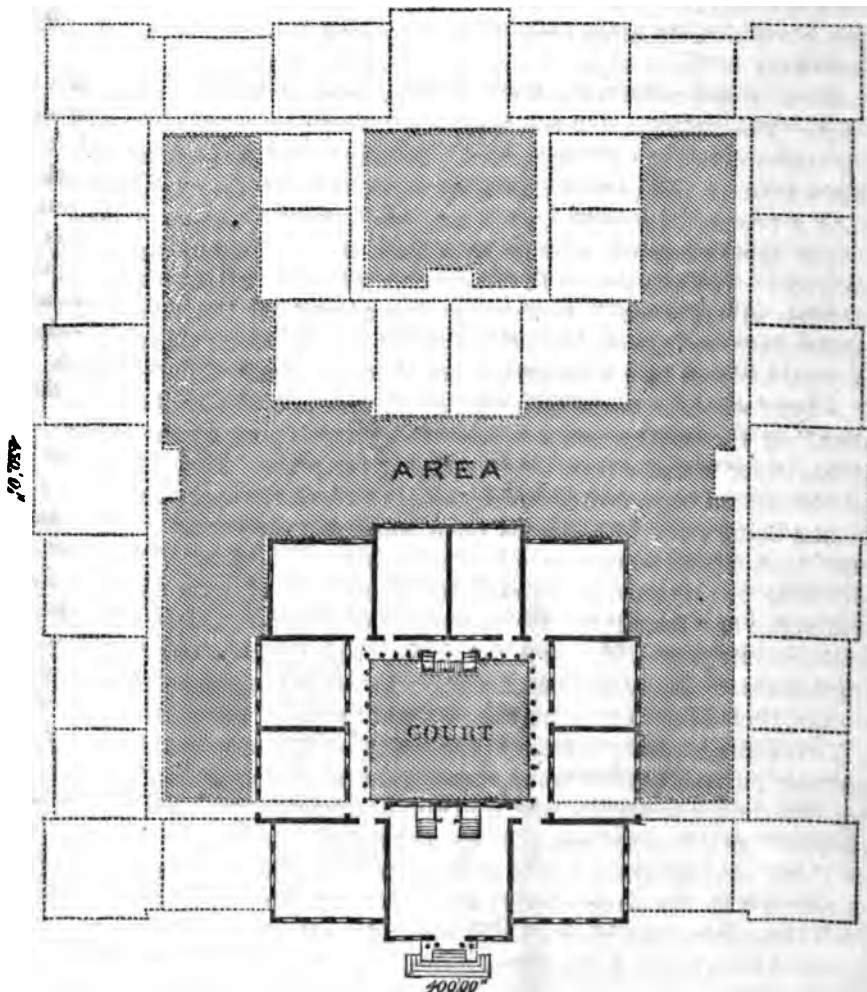


FIG. 6.—Ground plan of library building with extension.

cases. By the rule we have already demonstrated, that each square foot will shelve 25 volumes, we have for the shelving capacity of this story 505,000 volumes, and of the four stories, 2,020,000 volumes. The ceiling of the upper story is only 69 feet above the lower floor, and, if more space be needed, the walls may be carried two stories higher, which will give accommodations for another million volumes. The walls will then not be higher than many of the blocks in our commercial

cities, which, by means of elevators, are used as business offices to their upper stories.

By extending the front wings 100 feet on each side and carrying them back to the rear line, leaving an area 50 feet wide for light and ventilation, we have accommodations for 3,000,000 volumes more, or 6,000,000 on a lot of 400×200 feet. By extending this construction over a lot 400×450 feet, as in the plan before you, we have a capacity of 12,000,000 volumes.

It is desirable for many reasons that a large reference library should be surrounded by wide open space and should be away from business centres. Such lots are not always available in a large city, and it is necessary to erect the building on a business block. A construction such as I have described is favorable for such a locality. A large number of volumes can be provided for on a lot of moderate size, and as a source of revenue the basement story could be used for business purposes. The building with its fire proof construction would not be endangered in case one of the basement apartments should take fire. Whether it could live in such a furnace as the great Chicago fire is a question.

I have thus far considered only the wants of a reference library like the British Museum, the Astor Library, and the Peabody Institute. It may be necessary to provide also for a circulating department. One of these front rooms, which will shelve 67,500 volumes, may be used for this purpose. The circulating department may be located in the basement, whose storage capacity has not been included in our previous estimates. There is a clear open space in the quadrangle, nearly 90 feet square, for which no provision has yet been made. A one-story structure, lighted from above and covering this space, will not interfere with the light of the reference department. It will contain 120,000 books for circulation, with ample space for waiting and delivery rooms. Access to it might be had on the basement floor under the main entrance to the reference department.

One very important part of the subject remains to be considered, viz, the cost of the building. In this matter I have not ventured to trust my own judgment, and have relied wholly on the careful and detailed estimates of one of the most experienced and conservative architects in Chicago, Mr. William H. Willcox, who has built many large structures, and is now building the State House at Lincoln, Neb., which will cost \$1,250,000. I have his estimates with me; and, as they are too long for me to read, I will only state the results.

The estimates are made on a building such as has been described, covering a lot 200 feet square, five stories high, including the basement, and having a capacity of shelving 2,000,000 volumes. The exterior will be of sandstone, in simple yet characteristic design. The building is to be absolutely fire proof, with brick walls and iron beams, iron window frames and sashes, and steel inside blinds to all exterior windows. The interior iron work will be covered with porous terra cotta or other fire resisting material. The floors in the book rooms will be of hard wood

and in the vestibule and inside corridors of tiling. The walls of the same will be wainscoted in stone and tile. The cost of the building complete, including the steam apparatus for heating, but not including the shelving and furniture, will be \$530,000. The shelving, which will be of hard wood, with the furniture, will cost \$110,000, making the entire cost of the building in readiness for occupation \$640,000. The cost of construction, on the basis of storage capacity, in the Boston Public Library, is \$1.30 a volume; in the Astor Library, \$1.33; in the Cincinnati Public Library, \$1.40; and in the Peabody Institute, \$2. In the plan I have laid before you, the cost of construction, estimated on the same basis, is 32 cents a volume.

I will take no more of your time in presenting this subject, and shall now be happy to reply to any inquiries which may be made.

A discussion followed the reading of the paper. The remarks appended were made by Mr. A. R. Spofford, librarian of the Library of Congress; by Mr. Lloyd P. Smith, librarian of the Philadelphia Library Company; by Mr. John Edmands, librarian of the Philadelphia Mercantile Library; and by Mr. Poole, in explanation of the purpose of the paper, which had been misunderstood by several of the speakers, but not by those named above.

Mr. SPOFFORD. If there were no other cause, Mr. President, why we should all be grateful to our veteran colleague from Chicago whose lucid and interesting paper has been read than its suggestions for preventing the overheating of books and libraries, that alone would entitle him to a high meed of praise. If you go into the upper galleries of the Library of Congress on any day of the winter and take a book from the shelves, the chances are that it will almost burn your hand. It has often occurred to me that if these warped and shrivelled and overheated volumes were not inanimate beings, if they could only speak, they would cry out with one voice to their custodians: "Our sufferings are intolerable." In the library I speak of, moreover, there is only the injury resulting from the rising heat to which the books are subjected, since no gas is burned. When to the fearful and almost incandescent heat that gathers under every ceiling is added the well known destructive influence of coal gas, burned through many hours of each day, the effects upon the books and bindings are simply deplorable.

Now, by the simple and ingenious expedient graphically represented before you by our Chicago colleague all the deleterious effects of overheating are got rid of. By the mere method of construction, the lofty upper stories are abolished; each floor for the storage and arrangement of books being only sixteen feet high, all the books are within easy reach from the floor, and the upper half of every library room is devoted, not to the concentration of heat, but to its dispersion or ejection, which is effected by windows that supply at once a maximum of light and of ventilation.

It has been suggested that most librarians are unable to avail themselves of this or of other marked reforms in the methods of library construction because, unhappily, their libraries are already built. But it is also true (is it not, Mr. President?) that most, if not all, of them have got to be rebuilt. Whether, therefore, if one take the case of an entirely new library building of the first magnitude, as in Washington or in Chicago, or the case of a little or an ill contrived library edifice anywhere that has outlived its usefulness, we have here most invaluable suggestions to aid us in determining the most expedient method of planning and constructing. I look upon this information and discussion as of the first importance among our labors in this convention, and, whatever might be our conclusion as to the details of the scheme, I hail the special improvement of which I have spoken as one of great practical value.

Mr. SMITH. Mr. Poole's plan of a fire proof library is highly original, and deserving of serious consideration by those who have occasion to erect new library buildings. With all the care that can be used in the choice of materials, a room containing books in galleries, one over the other, is in danger from fire, and the bindings suffer in the upper galleries, not only from furnace heat, but, in our climate, from the heat of the sun as well. The farther books are from the ceiling the better for their bindings. I am not, however, prepared to give up the idea of a central reading room, like that of the British Museum; but the plan of separate rooms for the storage of books, each fire proof in itself, has the experience of the city of Paris to recommend it and will probably be found to be best for the library of the future.

Mr. EDMANDS. In some remarks which have been made upon Mr. Poole's paper it seems to me that his purpose in its presentation has been misunderstood. It appears to be assumed that his object was to present a definite plan for a library building. I do not so understand him. I have not supposed that he presented this as the plan for the new building for the Chicago Public Library nor for the Library of Congress. It seems to me he intended his paper and his sketches as a study on the subject of library construction. He has attempted to show one of the ways in which a library building can be constructed that shall be free from many of the admitted defects of those most in vogue, and that shall be superior to them in the great essentials of such a building.

Mr. POOLE. Mr. Edmands has correctly stated the purpose of my paper. It is a study in library construction, and not a plan for any special library, unless it be one which comes within the precise conditions I have named, "a reference library of a million volumes." I might, applying the same principles, have worked out the details and placed before you the plan for a smaller library. Then the question would have been asked, "How do these principles apply to the construction of the largest libraries which will be needed in this country?" I have preferred to meet this latter inquiry first. At some future time, if it be necessary,

I may show their application to smaller libraries. This, however, I hope the members of the association will do for themselves. I have pointed out the special faults in the popular style of library architecture, and have suggested how they may be avoided. The principles which I have discussed require a specific adaptation to each individual library, for the conditions of no two libraries, as to size, growth, means, objects, and readers, are precisely alike.

On the next day Mr. Edmands offered the following resolution, which was unanimously adopted:

Resolved, That, in the opinion of this association, the time has come for a radical modification of the prevailing typical style of library building, and the adoption of a style of construction better suited to economy and practical utility.

APPENDIX.

The following extract from a letter addressed by Dr. N. H. Morison, of the Peabody Institute, to Mr. Poole will explain itself:

"I was very busy when your letter came, and I have waited till I could answer your questions by actual experiments. For several days I have had thermometers in our alcoves to test the temperature, and will give you the results:

"We use our main hall for a certain class of readers, and keep it at about 68°, sometimes 70°; seldom above. The alcoves, which are 8 feet high and completely floored over, have a passage way next the wall, and no heat is supplied to them except what may enter from a horizontal motion of the air from the main hall. Each alcove has two small outside windows, and there is much leakage around them. The alcoves all over the building are too cold in winter for work in them. I placed three thermometers in each of the stories, one next the main hall, but inside the alcove, where the first books are placed, one in the middle of the alcove, and one about 18 inches from the window sash. The thermometer stood outside, in the open air, at from 36° to 38°. I give the temperatures in the central hall for reading (not reading room) and on each of the stories in this order: window, middle, front next hall:

"Hall, 68°; 2d story, 57°, 66°, 67°.

"Hall, 67°; 3d story, 58°, 65°, 66°.

"Hall, 66°; 4th story, 62°, 66°, 67°.

"Hall, 66°; 5th story, 61°, 64°, 65°.

"Hall, 66°; 6th story, 62°, 65°, 66°.

"As I used but 4 thermometers and began with the sixth story, you will perceive the temperature in the hall alcove increased as the day advanced. I tried these over several times, with essentially the same results. I then ranged the thermometers over each other in the different stories:

"Hall, 66°.

"4th, 67°.

"5th, 67°.

"6th, 68°.

Hall, 69°; hall, 68°.

1st, 60°; 4th, 62°.

2d, 60°; 5th, 63°.

3d, 60°; 6th, 64°.

"On front next main hall, the warmest place.

"Thermometer near windows, the coldest place.

"I tried it repeatedly and found the wall side of the sixth story almost uniformly 4° colder than the reading hall below. I was myself surprised at this, and it must be owing to the construction. The central hall is about 15 feet higher than the highest alcove, and the warmest air goes there. The hall is heated by pipes laid under gratings in the floor, and keeps the lower part of the room warm without excessive heat above. The alcoves have no heat whatever in them and are cooled by the windows.

"These experiments show conclusively that there is no danger of injury to the books from heat even in the highest of the alcoves. In summer these high alcoves are excessively warm from the glass roof, not over them, but over the main hall.

"Although I planned this library building, from 'turret to foundation stone,' I have no especial prejudice in favor of this type of structure. It is the only one that will make a handsome room while it furnishes large space for books. Our trustees decided, by a unanimous vote, on a building of this type. Mr. Peabody had requested that the

building should be an ornament to the city. I did not think it would be wise or becoming in me to resist this decision, but set myself to make the most convenient building I could under these conditions. The beauty of the room is acknowledged by every one who has seen it. We have tested its conveniences nearly three years, and we see very few things that we could improve; in fact, I know of but one.

"You ask for the cost. You know that our building is not simply a library, but accommodates a conservatory of music and a gallery of art and lectures. The entire lot cost \$167,572.48; the entire building, \$517,086.90. The entire sum spent on lot and building was \$684,659.38. The part of the building which contains the library cost \$342,055.85."

CIRCULARS OF INFORMATION

OF THE

BUREAU OF EDUCATION.

No. 2-1881.

**THE RELATION OF EDUCATION TO INDUSTRY AND TECHNICAL
TRAINING IN AMERICAN SCHOOLS.**

**WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1881.**

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LETTER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., May 25, 1881.

SIR: The papers transmitted with this letter—"The relation of education to industry" and "Technical training in American schools"—are by E. E. White, LL. D., formerly State commissioner of common schools in Ohio and now president of Purdue University, in Indiana.

Dr. White as an educator is one of the most prominent and successful workers in this country. He has given special attention to the topics herein discussed, and his papers will meet a growing demand among the correspondents of this Office.

I therefore have the honor to recommend their publication as a circular of information.

Very respectfully, your obedient servant,

JOHN EATON,
Commissioner.

The Hon. the SECRETARY OF THE INTERIOR.

Publication approved:

A. BELL,
Acting Secretary.

TECHNICAL TRAINING IN AMERICAN SCHOOLS.

The American people are awakening to the importance of technical training, so universally recognized in the older countries of Europe. The rapid exhaustion of the natural fertility of our soil, the wonderful increase in the variety of our manufactures, and the marked improvement in the taste of our people, largely the result of general education, all demand higher technical knowledge and skill on the part of the American workman.

This increasing demand for better work has been attended by a steady decline of the apprentice system, which hitherto has been our chief reliance for the training of artisans. It is becoming more and more evident that if this decay of apprenticeship is not made good by technical training in some efficient form the American manufacturer will be at the mercy of the skilled labor of Europe. The railroad, the steam ship, and the telegraph have largely destroyed industrial isolation, and all skilled labor is subject to a world wide competition. The American artisan must compete with European workmen in skill or retire from the shop and surrender the market. The day of muscle in industry has passed, and the day of mind, with skill of eye and hand, has dawned.

The necessity of technical training being conceded, how can it best be provided? This, as is seen, involves the question to be considered in this paper, viz: "What is the place of technical training in American schools?" And this involves the further question: "To what extent can technical training be given in our public schools?" It seems to the writer that the time has come when an attempt to answer these questions involves no assumption of superior wisdom. A vast amount of information respecting technical schools and technical training in other countries has been collected, and experiments have gone far enough to furnish the requisite data for safe generalization and the adoption of a general policy, details being left for future experience to test and settle.

Whatever may be true of the value of the information and experience now available, the views presented in this paper are expressed with some assurance that they are neither hasty nor visionary.

A concise statement of a few of the fundamental principles involved may not only avoid misunderstanding, but may shed a clear light on the question before us.

- (1) The state has a right to teach any branch of knowledge that will

promote the public welfare. This is the broad proposition on which public education rests. The attempt to draw a line through education, and deny the right of the state to cross it, is illogical and futile. The state has either the right to teach all branches of knowledge or it has no right to teach any branch. There is no middle ground.

(2) The right of the state to teach all knowledge does not necessarily make such instruction its duty. The right to teach is one thing and the obligation to teach is another. The duty of the state in education is limited by its ability. It cannot teach all persons all knowledge, and it is not its duty to attempt it. When the teaching of one kind of knowledge necessarily excludes more important instruction the state is released from obligation to teach such knowledge. If it has not the ability to cover the whole ground, it becomes its duty to give attention to the more important and useful.

(3) The duty of the state to teach is also conditioned by necessity. The state has no monopoly of education. The church, the family, and the individual have also the right to teach, and every human interest may organize and support schools for its promotion and benefit. When needed, instruction is or will be given by other agencies. The state may or may not provide it. Its concern is to see that such necessary instruction is efficiently given.

(4) The primary and imperative duty of the public school is to provide training and to teach knowledge of general application and utility. It recognizes no class distinction, social or industrial, but provides a general education for all classes of youth. It is a *common* school, a school designed to impart a common education—an education open to all and useful to all.

This primary function of the public school is of the highest practical importance and value. Its comprehensive aim is to prepare the child to discharge the duties and meet the obligations of coming manhood, including his relations to the family, society, and the state—relations involving the highest and most important activities of civilized life. In performing this function the public school assumes that every boy that crosses its threshold to receive instruction is to be a man, and that his first and highest need is to have all the elements of manhood within him developed, quickened, and energized. The first element in this elementary training is character, and the second is intelligence—moral and intellectual furnishing and force.

(5) The public school, as above defined, exhausts neither the right nor the duty of the state in education. The state may establish higher institutions and it may organize or encourage special schools to promote important industries or to meet the wants of classes. It has the right to supplement the public school by special schools for technical training.

We are now prepared to ask whether any technical instruction can be provided by the public school without subverting its primary function,

without sacrificing the more important and imperative for the less important and the incidental.

The elements of technical knowledge which are of general application and utility may clearly be taught in the public school. These may include instruction in industrial or mechanical drawing, the practical applications of geometry, the keeping of accounts, the elements of the physical and natural sciences, modelling in clay, and those elementary mechanical processes which may be made an efficient means of general training. Such instruction is not only the basis of technical training, but is of great value to all youth, whatever may be their future occupations and positions in life. It is useful as a general preparation for *all* pursuits. Time for this instruction may be gained by reducing the time hitherto devoted to several other branches of study. This has been done in many schools without loss, and the adoption of truer ideas and better methods of teaching would make it possible and feasible in all.

The technical instruction above indicated may properly be called *general*, in distinction from that which relates to a particular trade or pursuit, which is *special*. Special technical training involves the use of the tools and other appliances of given trades and occupations. In the mechanic arts it includes what is known as "handicraft"—skill in the use of tools, machinery, and material. Its purpose is not general training, but special preparation for a special pursuit.

Should this special technical instruction be made an integral part of the work of the public school? In the light of the principles above stated, I unhesitatingly answer, *no*. It is not the duty of the public school to teach trades, and an attempt to do this work on an adequate scale would subvert public education from its primary purpose and end in disappointment and failure. The sooner this is understood and accepted the better for both industrial and general education.

Several objections to the teaching of trades in the public school may thus be stated :

(1) It is impossible for the public school to teach a tithe of its pupils the pursuit or occupation by which they are to earn a living. A glance at the list of occupations given in the report of the census of 1870 will satisfy any one that but very few of the three hundred and thirty-eight occupations therein named can be made a part of the public school course. Of the one hundred and seventy-two occupations classed as "manufactures and mechanical and mining industries" not a score can be taught in a school shop, and but few of these can thus be taught with any efficiency. The public school would make a large contract if it should undertake to train its pupils to be bakers, bleachers, dyers, bookbinders, brewers, brick and tile makers, butchers, candle and soap makers, carpet makers, carriage and wagon makers, charcoal burners, cheese makers, cigar makers, confectioners, coopers, trimmers, tanners, photographers, distillers, engineers, gas works employes, glass makers, gold and silver workers, gunsmiths, locksmiths, harness and saddle makers, hat

and cap makers, shoemakers, iron furnace and rolling mill operatives, cotton, woolen, and silk mill operatives, steam boiler and steam engine makers, tobacco factory operatives, upholsterers, wheelwrights, &c. The attempt to teach one-fifth of these and like trades to all youth would exhaust the present resources of the public schools.

(2) The teaching of a few trades to all pupils would crowd these pursuits with workmen and reduce the compensation of skilled labor therein to the wages of common laborers. The turning of the pupils in the public schools of cities and towns into a few channels of industry would glut these occupations and leave many skilled workmen without employment. The training of all the boys to be carpenters and blacksmiths, for example, would be worse than industrial folly. Not a tithe of them could earn a living as hand tool mechanics. Handicraft is fast disappearing, and more and more mechanical work is done by machinery. The coming artisan will be the master of the machine, as has been clearly shown by Professor Thompson, of the Technical School at Worcester, Mass. The teaching of handicraft in the schools would give nine-tenths of the pupils skill which they would never use in after life or use only incidentally.

A reference to the statistics of industry will show that the above statements are not too strong. A recent paper on technical education contains a table of occupation statistics in Massachusetts, showing that about one-fourth of the laboring population of the State are engaged in manufacturing and mechanical industries. It asserts that these three hundred thousand workmen represent skilled labor in productive industry, and the inference is suggested, if not stated, that the skill of these artisans would be greatly increased by a knowledge of mechanical drawing. The census of 1870 shows that less than one-third of these artisans are working in wood and iron, using handicraft skill, and we estimate that not more than fifty thousand, or one-twentieth of the working population of the State, are hand tool mechanics. Would it not be wiser as well as cheaper to train these fifty thousand skilled artisans in well equipped shops and special schools than to make the weak and vain attempt to train half a million mechanics in the public schools to supply several mechanical industries with fifty thousand skilled workmen?

This objection does not apply to the training of pupils in the use of hand tools and simple mechanical processes, when such training is made a means of *general* education—the training of the eye, the hand, the mind, for educational purposes. Such training is not the teaching of trades or handicrafts, but is general technical training, the same as mechanical drawing, and as such has a place in the public school course. The extent of such training will depend on its value as an element of general education.

(3) Another objection to a partial system of industrial training, the teaching of a few trades to a few pupils, is its manifest injustice. The public school can provide such special training only at the expense of

its facilities and appliances for general education. Why should the value of the public school to the great majority of its pupils be lowered to teach trades to a small number of youth? Why should a few pupils be thus taught trades and the great majority of youth be left without technical training?

The question has no satisfactory answer. The workshop cannot be put into the public school without a sacrifice of its efficiency as an agency for general education. Besides, the teaching of hand tool trades to a few pupils in the public schools is mere playing with the great problem of industrial training. Every productive industry needs the assistance of special technical training.

This objection does not apply to the teaching of trades in reformatory schools, orphan asylums, institutions for the blind, the deaf and the dumb, &c. These are special schools for classes of unfortunate youth, and the pupils therein may be taught trades at the public expense on the same principle that they are fed and clothed.

The three objections above stated show that the public school cannot wisely undertake the work of special technical training. To do this it must train all children for their respective future pursuits or it must teach a few pupils chosen pursuits, and the objections to each of these courses seem to us to be conclusive.

A recent report of the school committee of an eastern city contains this statement: "The question of teaching trades in our schools is one of vital importance. If New England would maintain her position as the great industrial centre of the country, she must become to the United States what France is to the rest of Europe, the first in taste, the first in design, the first in skilled workmanship. She must accustom her children from early youth to the use of tools, and give them a thorough training in the mechanic arts."

This has been pronounced "the most important official utterance yet made in this country on the subject of technical education." If the first sentence fully interprets the meaning of the statement as a whole, we give it as our humble opinion that the utterance is the most impracticable educational scheme which has yet received official sanction. We submit that the teaching of trades in the public schools should not be a question in the minds of the intelligent and practical educators of the foremost school city of the country. The maxim that the head and the hand should be trained together is, in one sense, an important educational principle, but as a statement that the public school should teach every pupil to work with his hands while it trains him to think "with his head," it is impracticable and misleading. It may be true that every child of the requisite age should be taught to work while he receives his schooling, but it does not follow that this work should be supplied and directed by the public school. The family has something to do in the training of children, and a considerable portion of child life is still under the parents' control. The public school has hitherto recognized

this fact, and it has wisely not attempted to do everything which industry, religion, and civilization demand in the education of each generation. The public school cannot wisely be made a workshop for the training of apprentices, but it can and should give such general technical training as underlies all industrial pursuits. The special instruction and practice needed to make a coat, shoe a horse, or build a house should be left to the shop, or to some special trade school, properly equipped for this work. The public school has done its part in preparing youth for special pursuits when it has given them an efficient general preparation for all pursuits, and all industrial experience shows that the more fundamental and thorough this general preparation, the more fruitful will be the special training.

What is needed is to supplement the public school with a system of special schools for technical or industrial training. But how are these special schools for industrial training to be organized and supported? The political, social, and industrial conditions of the nations of Europe differ so radically from those of this country that it is not always wise to be guided by European experience in education; but it will be safe to assume that whatever private enterprise has been equal to there it will be equal to here.

As a rule, the higher technical and agricultural schools are there directed and maintained by the government, and many schools of arts and trades receive more or less state and municipal aid. The more strictly industrial schools, especially those which teach industrial arts or trades, are private institutions, supported and directed by individuals, or by the industries interested, or by philanthropic societies. The number of these special schools has increased until nearly every art and industry has its training or trade school.

We see no reason why this experience may not be repeated in this country. The National Government has laid the foundation of at least one industrial school of a high grade in each State, and in accepting this bequest each State has pledged its faith for the maintenance of the institution thus founded. Polytechnic and technical schools but little less comprehensive have been founded by private munificence, and schools of art are springing up in our cities. The conditional offer of State or municipal aid would induce every important productive industry to establish technical or trade schools for the training of skilled workmen.

What is needed to secure a full development of this system of special schools is a popular demand for technical instruction, and this is coming. Experience is demonstrating the practical value of such training, and every important American industry will soon have its technical school, especially if the public school is held to its own legitimate work.

For the complete success of this system of industrial training the requirements of the public school should be so modified as to permit pupils over, say, twelve years of age to devote a part of each day to

labor or to special technical training. I have long held that the interest of both education and industry would be promoted by the adoption of half time courses of study, running parallel with the present full courses and in the same classes. The half time course should contain only the essential and more important branches of study, and the daily programme should be so arranged as to bring the instruction in these branches into a half day — either the forenoon or the afternoon. This arrangement would avoid the organization of separate schools for half time pupils, and their consequent separation from other pupils, and, at the same time, it would afford the advantages of full time schools without loss to those pupils who wish to devote full time to school work. The limits of this paper forbid the giving of details. It must suffice to say that such an adjustment has stood the test of experience in several of the German states. I received the idea from the school system of Bavaria.

Permit me, in conclusion, to deprecate that advocacy of technical education which disparages the industrial value of general education and more than hints that the public school is an industrial failure. If this be true of the public school, it is clear that neither industrial drawing nor instruction in sewing will prove an adequate remedy. But the public school is not an industrial failure. It has been and is the most effective of all agencies for the promotion of American industry. Its training touches both of the prime conditions of productive industry. It awakens desires and incites and impels man to effort; enterprise and wealth are the results. It gives ingenuity to the mind and cunning to the fingers. Thought in the brain of labor is the alchemy of industry, turning everything it touches into gold. Intelligence and character are the two great conservators of wealth. Who can estimate the industrial value of the common schools of New England!

It is not claimed that the public school is doing its full duty in promoting the productive industries of the country. It should give a larger place in its course to general technical instruction; it should be pervaded by a more earnest industrial spirit, and it should do more to cultivate a taste for industrial pursuits and a respect for honest labor. These practical advances are more important than a weak attempt to make artisans.

THE RELATION OF EDUCATION TO INDUSTRY.

Aristocracy has always opposed the education of the people. The aristocracy of Caste asserts that the great majority of mankind are born to serve the few, and, since the less intelligent the servant the more docile the service, it declares that education unfits the children of toil for their lot in life.

The aristocracy of Capital asserts that popular education is a tax on capital. The more intelligent a man is the greater are his wants and the higher must be his wages in order to meet his increased necessities. Ignorant labor has few wants to supply, and hence is content with low wages.

The aristocracy of Culture asserts that the masses are born dullards, and that all attempts to educate them are futile. The few on whom God has bestowed the gift of brains are commissioned to do the world's thinking, and they thus monopolize the right to education. This is the doctrine of the hero-worshiper, Carlyle, and it is asserted more or less clearly by many devotees of culture who have lost all sympathy for the people. It has been faintly echoed by the learned president of Harvard.

These three great aristocracies (the three C's) unite in opposing all efforts to uplift the laborer by the power of education. Schooling, they assert, spoils children for labor: it makes them discontented with their lot, fills them with vain ambitions, makes them idle, &c. These assertions are now more frequently aimed at higher education, and especially at the high school; but they were once urged, with as great earnestness, against the elementary schools of the people. Reading and writing have received many a blow as the dreaded enemy of capital and caste.

The late financial check to the prosperity of the country afforded these aristocracies a coveted opportunity to renew their assault on popular education. The land was filled with idle men seeking employment, and numerous positions which had been open to intelligent young people were closed against them. This condition of affairs made the idleness of the young painfully evident and gave increased plausibility to the oft asserted opinion that popular intelligence is resulting in a growing disinclination among our youth to earn a living by hard work. The schools were assailed as the enemy of industry and labor, and even the ridiculous complaint of Bacon against the schools of the seventeenth century, that they "filled the realm full of indigent, idle, and

wanton people," has been made against the public schools of the United States.

It is freely conceded that the schools may not be doing their full duty in inculcating a respect for labor and a disrespect for idleness, and their instruction and training may not bear as directly as is desirable on industrial pursuits, but they are not responsible for the evils which have seriously afflicted American industry and American society. It is a common trick of logic to connect two contemporaneous phenomena as cause and effect. The moon is thus made responsible for many results in agriculture, and the party that happens to be in power is always held responsible for "hard times."

The observed disinclination to manual labor, and especially to what is called menial service, is largely due to causes outside of our schools, to influences evident in our American life.

The first of these is the influence of slavery, which once permeated the entire country with degrading views of labor. It will take a hundred years to recover from the effects of the old slave code, with its "mud-sill" theory of labor.

Another cause is immigration, which has filled nearly every department of common labor with workmen long subject to caste ideas and resulting social customs. The unpleasant social conditions thus instituted have crowded out intelligent American labor. It was once a common thing in the Northern States for the sons and daughters of persons in good circumstances "to go out to service," and they were treated as the equals socially of other young people. This is now true in American communities where the social condition of the workman has not been degraded by the introduction of caste ideas and distinctions. When domestic service in this country was subjected to social degradation, the American girl turned to the mills and the factories for employment, and when ignorant servile labor took possession of these she turned to the store, the telegraph office, the school room, and other occupations demanding intelligence and granting some social recognition. What the American girl has done, her brother has done. What each has sought is not so much an escape from work as protection from social ostracism. When the broom or the spade is socially tainted, the intelligent American youth will drop it. The only remedy is to remove the social taint from the implements of labor by elevating and ennobling the workman.

Another of these social causes is the growth of aristocratic ideas among the American people, a result largely due to shoddy wealth, with its silly apings of European manners and customs. The woman who was once a hired girl, but has married rich or suddenly amassed a fortune, is most earnest in impressing her children with an idea of their social rank. Aristocratic ideas are permeating American society.

These social influences are antagonized by the spirit of our free institutions. The principles of civil equality largely involve those of social

equality, and it will take the American people a long time to learn to accept the theory that industrial occupations are a proper basis of social distinctions. The present strife between the political ideas which are the common inheritance of Americans and the caste customs of Europe can but have an injurious effect on American industry.

Another cause of the disinclination to do manual labor is the rapid growth of our cities and towns, opening a multitude of employments and bidding for bright and intelligent youth to fill them, thus causing a rush from the farm into the towns and cities which are springing up on every hand as if by magic. How many different employments have thus been created and what a multitude of desirable positions have thus been opened to American youth! Is it any wonder that the intelligent and ambitious have been attracted to them? Doubtless many a good farmer or mechanic has been spoiled to make a poor lawyer or an unsuccessful merchant; but, on the contrary, all the professions and all departments of trade have been enriched and vitalized by contributions of brain power and character from the farm and the shop. The tide is now setting the other way, and the farm and the shop are bidding for intelligence and skill.

Much of the idleness which disgraces and degrades our industrial life is due to inborn laziness. A disinclination to work is no new thing under the sun. It is as old as human nature, and there is no evidence that it is peculiar to the educated and intelligent. On the contrary, the lower the condition of a people the less their inclination to work. In savage tribes the work is done by those who are compelled to toil either by hunger or external force. In half civilized nations the work is chiefly done by the women, who, in all material respects, are slaves. In all conditions of civilization man does not work except from interest or necessity; and so long as human nature remains what it is there will always be persons who prefer to get a living by their wits rather than by hard work.

Intemperance is a fearful recruiter of the army of idlers and tramps. It destroys every year more skilled labor than all the technical schools of Europe produce.

These, and other causes which might be named, are certainly sufficient to account for the unsatisfactory condition of American industry, without charging it to the schools. Schooling may spoil some people, but many more are spoiled for the want of it. It is ignorance, not intelligence, that is degrading American labor and crippling American industry. The public school is the most effective agency in the country for the promotion of industrial progress.

Over against these pet dogmas of aristocracy, before stated, permit me to put a few propositions, which are abundantly sustained by experience.

1. *Education promotes industry and lessens idleness.*—It awakens and multiplies desires, and thus incites effort to secure the means of their

gratification. It thus touches both factors in the great law of wealth. The Indian builds his rude wigwam and fashions his bow and arrow and tomahawk, and with these his wealth and industry cease. Ignorance everywhere clothes itself in rags and lives in hovels, but when man's nature is opened by education his desires clamor at the gateway of every nerve and sense for gratification. The awakened soul has wants as well as the body. Its desires take the wings of the light and fly to the uttermost parts of the earth for satisfaction. They change the rude hut into the neat cottage and fill it with objects which satisfy the wants of the soul as well as the wants of the body. Enter the homes of educated labor in this land and, taking an inventory of the articles therein which minister to taste and culture, contrast the result with what is found, the world over, in the hovels of ignorance. Some idea will thus be obtained of the industrial power of general intelligence. The elevation of a people in intelligence and taste increases their demands for the products of human industry and skill, and at the same time it intensifies human effort and multiplies and varies the forms of industry. Wealth is the child of education.

2. *Education makes labor more skilful and more productive.*—This proposition is based on a wide comparison of intelligent and ignorant labor, and is sustained by such a multitude of observations that it is no longer questioned by any one familiar with the facts. In 1846, Horace Mann, then secretary of the board of education of Massachusetts, opened a correspondence with business men to ascertain the comparative productive value of educated and uneducated labor. The men addressed included manufacturers of all kinds—machinists, engineers, railroad contractors, officers in the army, &c.—men who had the means of determining the productiveness of labor by observing hundreds of persons working side by side, using the same tools and machinery, and working on the same material, and making the same fabrics. In many instances the productiveness of each operative could be weighed by the pound or measured by the yard. The investigation disclosed an astonishing superiority in productive power of the educated laborer as compared with the uneducated. "The hand," wrote Mr. Mann, "is found to be another hand when guided by an intelligent mind. Processes are performed, not only more rapidly, but better, when faculties which have been exercised in early life furnish their assistance. In great establishments and among large bodies of laborers, where men pass by each other, ascending or descending in their grades of labor, just as easily and certainly as particles of water of different degrees of temperature glide by each other, there it is found to be an almost invariable rule that the educated laborer rises to a higher and higher point in the kinds of labor performed and also in the wages received, while the ignorant sinks like dregs and is always found at the bottom."

In 1870, the National Commissioner of Education widened Mr. Mann's investigations, addressing his inquiries to business men in all parts of

the country and to a few large employers in Great Britain. The result was a complete confirmation of Mr. Mann's conclusions.

The same lesson has been taught and enforced by the world's expositions. In 1851, the Queen of England sent forth a gracious invitation to the nations to send to her proud capital the best products of human skill. The world responded grandly, and the World's Fair at London was the greatest and richest collection of the works of art and artizan-ship on which the sun had ever shone. The exhibition was divided into nearly one hundred departments; the jurors were appointed, the articles were patiently examined, and at last the verdict was given. Great Britain was awarded the palm of excellence in nearly all the grand departments of the exhibition. The announcement of this result lit up Birmingham, Manchester, Sheffield, and other manufacturing towns with bonfires, and filled England with general joy. She rejoiced in the belief that she was mistress of the industrial world. She saw her sails whitening every sea and heard the increasing hum of her factories and mills.

Sixteen years passed over Europe. Napoleon III, in imitation of Queen Victoria's example, invited the nations to send up to his imperial capital the choicest products of human industry. The world responded even more grandly than before. The Paris Exposition was divided, like its predecessor, into over ninety departments; the jurors were appointed, the articles examined, and the verdict reached. Great Britain had excelled her competitors in but ten of all the departments. The announcement of this verdict produced consternation among the representatives of British industry. They met at the Hôtel du Louvre, and the one absorbing inquiry was, "Why this defeat?" The unexpected news crossed the channel, causing greater alarm than the threatened invasion by Napoleon I. This defeat awakened England to the startling fact that the industrial sceptre was slipping from her hands; and, as a result, she saw her ships rotting in her harbors and the hammer falling from the hand of her starving workmen. The disaster arrested public attention, and a searching and thorough investigation for its cause was made by a Parliamentary commission. The report made to Parliament in 1868 contains the testimony and the conclusion. *Education had won the palm of excellence for her competitors.* The conclusion is forcibly stated in the testimony of Mr. Edward Huth. "The workmen of other countries," he said, "have a far superior education to ours, many of whom have none whatever. Their productions show clearly that there is not a machine working a machine, but that brains sit at the loom and intelligence stands at the spinning wheel."

The discovered cause indicated the remedy, and the report to Parliament was soon followed by the great education bill, which established a general system of elementary education throughout Great Britain. Technical schools have been multiplied, and science has claimed a larger

place in the higher schools and universities. Great Britain has appealed to the schoolmaster to win back her preëminence in industry.

In all the great comparisons of national skill since made, the superiority of educated labor has been attested in a like striking manner. They all show that the day of mere muscle in industry has passed and the day of mind has dawned. Every form of industry now demands the ingenious brain and the cunning fingers of educated labor.

The productive power of education is also seen in the invention of tools and machinery, which has wrought a revolution in nearly every department of labor. Fifty years ago, the father and his sons, with sickle in hand, went into the harvest field and, handful by handful, laid it in sheaves. A thoughtful reaper with aching back asked the question, "Why cannot I give my fingers to my scythe?" The answer was the invention of the old square cornered cradle, with which the harvest hand could cut two acres of grain with less weariness than he had cut a half acre with a sickle. Another thinking workman with aching arm asked, "What is the use of so much timber?" He rounded the corner and invented the "muly" cradle, with which three acres could be cut more easily than two had been cut with the heavy cradle.

The sickle long since disappeared from the homestead farm; the old square cornered cradle, with a single finger left, hangs on a dying peach tree, and the muly cradle is kept only to pick up lodged places. When the harvest waves its golden welcome to the joyous farmer, out from the stable come two fat horses, and, attached to the great reaper, round and round the field they go, leaving it in well bound sheaves. Here is progress in farming, and this is but an illustration of what is taking place in nearly all departments of human industry.

3. *Education improves the condition of the laborer.*—It increases his economy and thrift, improves his physical habits, lessens his tendency to vice and crime, gives him greater social and moral influence, and prepares him for the wiser discharge of all civil duties. Mr. Mann's investigations showed that "individuals who, without the aid of education, would have been condemned to perpetual inferiority of condition and subjected to all the evils of want and poverty, rise to competence and independence *by the uplifting power of education.*" The testimony on this point, collected by Commissioner Eaton, is exceedingly instructive as well as conclusive. A. J. Mundella, M. P., a great manufacturer in the Sheffield district, England, employing from three thousand to four thousand men, replied :

My experience of workmen, on the average, is that the better a man is educated, and the greater the intellectual resources he possesses, the less is he disposed to sensual indulgence and the less is he inclined to any kind of intemperance and excess. * * * I have employed, in various departments of my own business, intelligent workmen earning lower wages than ignorant men employed in coarser branches of the business; and the intelligent man educates his children, lives in a comfortable house and has much refinement and many pleasant surroundings; whereas the ignorant man, with higher wages in some other department of labor, is more addicted to intem-

perance, his wife and children are worse clad and worse cared for, and his home is, in all respects, less comfortable. Perhaps the best illustration of this would be the contrast between a clerk earning 80*l.* a year, who is a gentleman in education, tastes, and surroundings, and an ignorant laborer earning the same sum. In England, intelligent workmen are generally the men who are distinguished for economy and thrift. They take the lead in all useful associations; they are the managers of the mechanics' institutions, the teachers in the Sunday schools, and the founders of coöperative societies.

Mr. S. P. Cummings, secretary of the Massachusetts Grand Lodge of the Order of St. Crispin and chairman of the executive committee of the International Labor Union, said :

Educated workmen live in better houses, have better surroundings, and are, in all respects, superior to those whose education is limited and defective. They are less idle and dissipated than the untaught classes. As regards economy, morality, and social influence, educated laborers are preëminent among their fellows. I may add one general observation, that, while I was foreman of a shoe factory employing forty hands, I always got better work, had less trouble, and, as a general rule, paid better wages to the more intelligent workmen.

Testimony of like character could be multiplied to almost any extent. Nowhere do an educated people clothe themselves in rags or live in hovels, and nowhere on earth do an unschooled and ignorant people do anything else. Place an intelligent people on the barren soil of New England or among the bleak hills of Scotland, and they will surround themselves with comforts and satisfactions.

It is true that an educated workman demands higher wages than an ignorant one, but his work is worth more. If he demands higher wages, he creates more value. Capital is not far sighted when it looks upon the workman as a mere machine. A machine may be set to the task of running another machine, but the result has never been satisfactory. But whatever the selfishness of capital may demand, the highest interests of the laborer are subserved by education. The workman is more than a machine. He is a human being, and his rights as such are as sacred and inviolable as those inherited by the more favored child of fortune. The artisan may be a hewer of wood, but if his life answer its highest purpose he must also be a hewer of wrong. The laborer may be the head and guide of a family, a member of society, a citizen of the state, and out of these relations flow duties of the highest importance. To prepare man to meet the higher obligations of manhood is the highest function of education. The highest result of education is manhood, and the prime element in manhood is character. Integrity and thought are the most practical results of school training.

This leads me to allude to what is called the "over education" of labor—the latest phase of the opposition to popular education. It is now willingly conceded that a very little learning is not a dangerous thing for the laborer, but Capital, Caste, and Culture are greatly concerned lest the common people be spoiled by too much education. They see special danger in the attempt to put facilities for acquiring a higher education within easy reach of the children of toil. The free high school is assailed as the common enemy of both capital and labor.

I have only time to say that this opposition to the high school rests upon the same basis as the former opposition to the common school. A high school education now no more unfits a boy for manual labor than an elementary education did when comparatively few received it. When the great body of laboring men were unschooled, the few who learned to read and write were thus fitted to fill positions demanding intelligence more than muscle, and they were, in a sense, educated out of their former condition. Where all workmen, as in Germany, receive an elementary education, those whose education is carried to a higher point are best fitted for positions demanding intelligence. The menial labor in every community will, as a rule, be performed by those who are the least qualified to fill other positions. When only a few are educated, it will be performed by the unschooled; when all are educated, it will fall to the lot of those who are the least educated. It is impossible to carry the education of the people to so high a point that the great majority will not still represent the less educated. An education that would fit a person for what is called a higher position in an unschooled community might only fit him for the lowest grade of work in an educated community.

Aristocracy may dismiss its fears respecting the future of labor. An educated people have the art of working both with their hands and with their brains, and they may be trusted to take care of themselves. It will be found that, as a rule, education never unfits a boy for manual labor, if it does not fit him for something else. False social ideas are doing the mischief, not schooling. The higher the education of a people the greater are their thrift and enterprise. Idleness is the twin brother of ignorance.

Those of my hearers who visited the Centennial Exhibition at Philadelphia in 1876 will remember the grand display of machinery and mechanical inventions and industries in the great Machinery Hall. Entering the building before nine o'clock in the morning, you found all the machinery motionless and the vast hall silent. Exhibitors and operatives were quietly taking their positions, and here and there was one tightening a band, oiling a bearing, adjusting the parts of a machine or tool, burnishing a polished surface, &c. As the hands of the great clock approached the hour of nine, men glanced at their watches and a hush of expectancy pervaded the place. At last the minute hand pointed to twelve, and a man approached the huge mass of polished metal in the centre and moved a lever, and then another. The ground began to tremble, the huge shaft above to turn, and the motion instantly ran out through shafts, bands, and wheels, and the immense area was filled with the whirl and hum of thousands of the finest machines and tools which human ingenuity had then devised, all doing their marvellous work—planing, turning, drilling, filing, printing, engraving, weaving, spinning, sewing, knitting, embroidering, &c.

The power back of all this wondrous display of motion and deftness was a few pounds of imprisoned steam in the great engine at the centre. What the matchless engine in Machinery Hall was to its myriads of mechanical operations, education is to the multiplying forms of human labor. The public school is the Corliss engine of American industry.



CIRCULARS OF INFORMATION

OF THE

BUREAU OF EDUCATION.

No. 3-1881.

**PROCEEDINGS OF THE DEPARTMENT OF SUPERINTENDENCE
OF THE NATIONAL EDUCATIONAL ASSOCIATION AT ITS
MEETING AT NEW YORK, FEBRUARY 8-10, 1881.**

**WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1881.**



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L E T T E R .

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, June 8, 1881.

SIR: The meeting of the Department of Superintendence of the National Educational Association in New York City last February was characterized, like preceding meetings, by the ability of most of the papers and discussions then presented.

The subjects treated relate to matters of current importance, and, if published, would satisfy the many demands upon this Office for like information.

I therefore recommend the publication of these papers as a circular of information.

Very respectfully, your obedient servant,

JOHN EATON,
Commissioner.

The Hon. the SECRETARY OF THE INTERIOR.

Publication approved.

S. J. KIRKWOOD,
Secretary.
53-54

NATIONAL EDUCATIONAL ASSOCIATION.

DEPARTMENT OF SUPERINTENDENCE.

MEMBERS IN ATTENDANCE.

REPRESENTING STATES.

Hon. B. G. Northrop, secretary of the State board of education of Connecticut, Hartford.

Hon. James P. Slade, State superintendent of public instruction of Illinois, Springfield.

Hon. J. H. Smart, State superintendent of public instruction of Indiana, Indianapolis.

Hon. C. W. Von Coelln, State superintendent of public instruction of Iowa, Des Moines.

Hon. H. C. Speer, State superintendent of public instruction of Kansas, Topeka.

Hon. M. A. Newell, State superintendent of public instruction of Maryland, Baltimore.

Hon. E. A. Hubbard, agent of the State board of education of Massachusetts, Springfield.

Hon. J. W. Patterson, State superintendent of public instruction of New Hampshire, Concord.

Hon. Ellis A. Apgar, State superintendent of public instruction of New Jersey, Trenton.

Hon. Neil Gilmour, State superintendent of public instruction of New York, Albany.

Hon. Daniel F. DeWolf, State commissioner of common schools of Ohio, Columbus.

Hon. J. P. Wickersham, State superintendent of public instruction of Pennsylvania, Harrisburg.

Hon. J. Ormond Wilson, superintendent of schools for the District of Columbia, Washington.

REPRESENTING CITIES.

Hon. Aaron Gove, superintendent of city schools, Denver, Colo.

Hon. H. M. Harrington, superintendent of city schools, Bridgeport, Conn.

Hon. Ariel Parish, superintendent of city schools, New Haven, Conn.

Hon. N. C. Dougherty, superintendent of city schools, Peoria, Ill.

Hon. A. P. Stone, superintendent of city schools, Springfield, Mass.

Hon. W. W. Waterman, superintendent of city schools, Taunton, Mass.

Hon. Albert P. Marble, superintendent of city schools, Worcester, Mass.

Hon. Wm. N. Barringer, superintendent of city schools, Newark, N. J.

Hon. Henry B. Pierce, superintendent of city schools, New Brunswick, N. J.

Hon. E. V. DeGraff, superintendent of city schools, Paterson, N. J.

Hon. Chas. W. Cole, superintendent of city schools, Albany, N. Y.

Hon. B. B. Snow, superintendent of city schools, Auburn, N. Y.

Hon. L. C. Foster, superintendent of city schools, Ithaca, N. Y.

Hon. H. R. Sanford, superintendent of city schools, Middletown, N. Y.

Hon. U. W. Cutts, superintendent of city schools, Orange, N. Y.

Hon. L. S. Packard, superintendent of city schools, Saratoga Springs, N. Y.

Hon. Andrew McMillan, superintendent of city schools, Utica, N. Y.

Hon. J. A. Nichols, superintendent of city schools, Yonkers, N. Y.

Hon. Henry S. Jones, superintendent of city schools, Erie, Pa.

Hon. L. O. Foose, superintendent of city schools, Harrisburg, Pa.

MISCELLANEOUS.

Hon. Jul. Katzenberg, school commissioner, New York City.

Hon. W. O. Garrison, superintendent of schools, Cumberland County, N. J.

Hon. Henry E. Pellew, school commissioner, New York City.

Mrs. E. W. Walworth, school commissioner, Saratoga Springs, N. Y.

Hon. W. L. Hoyt, school commissioner, Charleston, N. Y.

Hon. C. Henry King, school commissioner of Richmond County, Stapleton, N. Y.

J. H. Hoose, PH. D., Cortland, N. Y.

J. M. Hawkes, New York City.

H. B. Smith, New York City.

I. W. Smith, superintendent of schools, Children's Aid Society, New York City.

Amos M. Kellogg, A. M., editor of the New York School Journal, New York City.

Edwin Leigh, M. D., Brooklyn, N. Y.

Hattie N. Morris, Brooklyn, N. Y.

Joseph H. Palmer, Yonkers, N. Y.

John G. Murphy, Fishkill-on-the-Hudson, N. Y.

W. A. Campbell, High School, Hoboken, N. J.

David E. Rue, Hoboken, N. J.

FIRST SESSION—TUESDAY EVENING.

NEW YORK, *February 8, 1881.*

The first session of the department was held in the hall of the Cooper Union this evening.

Mr. N. A. CALKINS, chairman of the committee of arrangements, in calling the meeting to order, said:

LADIES AND GENTLEMEN: The Department of Superintendence of the National Educational Association has honored the city of New York by meeting here.

I now take pleasure in introducing to you the president of the board of education in New York, Hon. Stephen A. Walker, who will give the address of welcome.

Mr. WALKER spoke as follows:

Mr. PRESIDENT AND GENTLEMEN OF THE CONVENTION, LADIES AND GENTLEMEN: I take great pleasure in performing the office assigned me upon your programme and in welcoming you to the city of New York. I hope that this duty, having come to me as an official, will not seem thereby perfunctory or in any degree the less personal and cordial.

New York has been said to be a German city; it has been said to be an Irish city. Neither is true. It is a cosmopolitan city, and so far as devotion to the common schools is concerned it is, has been, and always will be, with even justice and a large liberality towards all, an American city, and to those who come here representing that idea and bearing these credentials our homes and our institutions are hospitably open. I welcome you to Cooper Union.

An Englishman who was lately here wrote to a paper in his own country that he thought this place should be called "a cellar of oratory." It is true we reach it without an elevator, but many good things of this life are kept in cellars, and the wine of free speech has never had a better storehouse than this. This place, gentlemen, is already historic. Could these walls have been covered with phonographic plates these past five and twenty years, we might take them down and there read the record of everything in politics, everything in social science, everything in finance, which has agitated the people or guided the forces and affairs of the nation. Democrats from this platform have argued for a high tariff and Republicans advocated free trade. Millionaires have represented the beneficent advantages of an unlimited currency, and men without a shilling in their pockets have favored contraction. This has been the focal point of every presidential and gubernatorial campaign since its doors were opened, and, when the issues have been at white heat and orators have found, by long practice upon the rural districts, what stories took the best, what arguments struck the closest, they have here made their final efforts. Here, in the gloomy or the cheerful days

of the war, stood Dickinson and Sumner to confirm and inspirit the hearts of the people. And here, just twenty-one years ago this present month, fresh from the heat of partisan debate in Illinois, stood the rugged form, here were heard the winning, wise, and weighty words of Abraham Lincoln.

But you are not only welcome to this historic hall; you may find a worthy reception to the topmost story of this edifice. From corner stone to flag staff there is not a square foot of space undedicated to the improvement and education of the people.

I congratulate you, Mr. President, on the purpose that brings you together and the happy issues that may be expected from your assembling. You are here to welcome each other, to hear each other, perhaps what is still more delightful, to hear yourselves. The good that may arise from the presentation and discussion of views may be difficult to calculate. You as superintendents are, I suppose, probably with very few exceptions, graduates from the corps of working teachers. If so, you are familiar and long have been with the complaint so frequently in the mouths of teachers, that the public fails to recognize their vocation as a profession, and only grudgingly, if at all, accords it the dignity in speech and nomenclature of which it is worthy. I state the fact of the complaint without argument, but it occurs to me as apropos to this occasion to say that there is an element wanting in the strictly professional character of the teacher's vocation which it may be, in the course of years, within the power of gatherings like this to supply.

Strictly speaking there can be no profession in the absence of a digested and systematic professional literature, and just that the teacher's art is not furnished with; of course I speak not of text books — of the making of these there is truly no end — I mean philosophical treatises on the fundamentals of pedagogy, the philosophy of the mind of youth in distinction to that of the mind of maturity.

How is it with the law? I can select two volumes from my library and hand them to a young man of parts trained to study and say. "Young man, master those two books. You may separate yourself from all human intercourse; you may exclude all other subjects for reading or study. If in two years or five years you can come to me having thoroughly mastered from these books the principles you find asserted and elucidated in them, you are a lawyer." Much will come from experience. The application of principles is the test of success, but grounded in these principles he is equipped for work, and after forty years of work the successful pleader or advocate can point to his two or his twenty thousand volumes which have formed his modes of thought and have been the source of his strength and power, and say, the whole is a perfect and rounded philosophical system, the applications of the principles of natural justice to the infinite vicissitudes of human experience. I will not enlarge on so fascinating a theme; it is so in the other learned professions. Paul and the Apostles, St. Augus-

tine and the fathers, speak from every pulpit; Hippocrates and Galen minister at every bedside. A systematized philosophical professional literature is the source of all strength and power.

I beg leave to suggest that your assembly may, while not intending it even, contribute to so wholesome a result. Literature is an evolution; the fittest survives. Some words here spoken may strike new veins of thought, and your humblest speaker may turn out to be the educational codifier of the future.

Again, Mr. President and gentlemen, I welcome you in the name of the board of education, in the name of the city of New York, in the name of its first citizen, the founder of this edifice.

I beg leave to express the hope that a wise discretion, a faithful suggestiveness, and a sound wisdom may be present in all your deliberations.

Hon. ALBERT P. MARBLE, president of the Department of Superintendence, replied as follows:

On behalf of the Department of Superintendence I thank you for the very kind words of welcome which you have given to this body. The hospitality of the city of New York we all know something about, and from your words we think we shall know considerably more before the week is ended. This association has been in existence nearly a quarter of a century, and its printed reports published each year form something of a literature. There is an inspiration in this noble edifice, devoted from top to bottom to education, and we expect that as we enter upon this meeting we shall feel it. In conversing with a judge of the supreme court, about six months ago, he said to me of the profession to which I have the honor to belong that it was greater than to be a judge of the supreme court, "because you are the men that make the men that make judges." And again I wish to thank you on behalf of the association for the cordial words of welcome which you have given us; and now, ladies and gentlemen, I wish to say a few words to you.

The National Educational Association was organized in 1857. We are therefore hard upon its quarter centennial. The body is composed of persons actively engaged or interested in the work of education. Early in the history of the association there were organized within it departments composed of those members specially interested in one branch of education. These departments have increased in number till we now have one of superintendence, one of normal schools, of elementary instruction, of higher education, of industrial education. There is also a council of education, designed to formulate conclusions to which the discussions of the association may lead. Membership in the general association is a prerequisite for membership in either of these departments. The proceedings of the association and the addresses delivered are printed annually in a volume which is distributed among the members. The proceedings of the several departments are included in these volumes, each of three or four hundred pages.

The Department of Superintendence is one of the oldest of these. I find it first mentioned in 1858. This, then, must be at least its twentieth anniversary. It has heretofore held its winter meetings in the city of Washington. The membership includes State, city, and township superintendents of schools. Superintendents from half, sometimes from three-fourths, of the States of the Union attend these meetings. Such is the body here met. It was through the influence of this department that the Bureau of Education at Washington was established, and General Garfield made a telling speech in the House of Representatives on the passage of the bill creating the Bureau. By means of this Bureau information respecting the public schools and all other kinds of education is disseminated. This department is also the medium by which the latest and the best in educational reforms, especially that which relates to the public schools, is spread abroad; for the interchange of ideas, both in public discussions and in private talk, tends to this result.

The body which this assembly represents, the teachers of the land, are the builders of the future America. Their work is not seen in a day; the results are far-reaching; the conducting of a nation's education should command the highest wisdom. Congress legislates for the present America with but partial reference to the future. Education relates solely to the future. Is there any grander work than this? If the Interior—largely concerned lately about a few Indians—is made a Department of the General Government, how about Education? It may be that the subject ought to be confined in a small bureau; and it may be that it ought not. This department of the Educational Association has never urged more prominence for its affairs. It has chosen to work quietly, as the Bureau at Washington has. But the example of other nations suggests my inquiry. There is no national control of education; it may be that there should never be even the semblance of such control; but as an individual—for this is not said as a representative of the department—I do not see that anybody need to be frightened, if, in some particulars and with proper restrictions, the National Government should act in the matter of public and universal education. Why not? Is it not of interest to each of us whether our fellow citizens, who participate with us in the exercise of sovereignty, are intelligent?

There are many publicists who advocate, in all matters, the fullest exercise of local option. They appeal to Jefferson, who is its great apostle. Let us see what he says about public education; it applies to all grades. In the discussion of "A bill for the more general diffusion of knowledge" before the legislature of Virginia, 1779, he said:

It becomes expedient for promoting the public happiness that those persons whom nature hath endowed with genius and virtue should be rendered, by liberal education, worthy to receive and able to guard the sacred deposit of the rights and liberties of their fellow citizens, and that they should be called to the charge without regard to wealth, birth, or other accidental condition or circumstance. But the indigence of

the greater number, disabling them from so educating at their own expense those of their children whom nature hath fitly formed and disposed to become the useful instruments of the public, it is better that such should be sought for and educated at the common expense of all than that the happiness of all should be confided to the weak or wicked.

There is an awakened interest in this country on the subject. The New South joins us in fraternal contest to obtain for itself the benefits that have flowed from public universal education at the North. In building up a new system they at the South have this advantage of us: there is no old lumber in the way. The Peabody fund has been a stimulus for them, and it will continue to be so. This new interest at the South displays itself in building up; at the North it shows itself in attacks with a view either to reform or to destroy. In either case our critics are our best friends. For no institution, no individual, attains its full strength without a contest. The young eagle learns to fly by being thrown from the cliff; its eye grows strong by gazing on the sun—so they say. The child contends with measles, whooping cough, chicken pox, and what not before he is a man. We never knew the strength of the Government till it was tried. So the public school system must resist attacks, or its friends will not know what it is worth. Accordingly, we say to Mr. Richard Grant White: "Please write us another Common School Failure." We glory in the way the first article was met; we didn't know before how strong the schools stand in the affections of the people. We leave it to the free college from which he was graduated to discipline him; we wait cheerfully the next discharge. Trained in the public schools, it may be said that a man ought to know whether they are a failure, for he has experienced their influence in his own person. But he may not be able to diagnose his own case. Perhaps he does not discriminate among the influences to which he has been exposed. A man of great ability ought to be satisfied. But if he will attack his schools, who knows but he may next find fault with his grandmother?

The awakened interest in education is evidenced by the reformer, numerous varieties of whom make their appearance through the public public prints almost daily. They develop scientifically, as they think. They are active, and enthusiastic, and visionary, and empirical, and alert. Defects they find, of course; they prescribe a remedy; it fails. They try another; it does not cure. They create a revolution; it does not pervade the land. And then, exhausted and discouraged, they bow the head in sackcloth and sit them down in the wilderness of faded hopes and feeble products, which their own morbid imagination has created; and there, like the ancient prophet, the lamenting Jeremiah, they deplore the forlorn state of our Israel! They might save themselves the trouble of these experiments and failures by studying the work of other people. They would see that the race has gone through the experience; and that the individual might profit by his ancestors, and not try to learn it all for himself. It would be amusing if it were

not sad to see how teachers and all concerned in school work are made the subject of adverse criticism. No case of fraud comes up but the blame is laid at their door; no smash-up on a railroad but the defective education in our public schools comes in for a rap; no record of immorality appears but the "godless schools" have to take the blame of it. If an accident happens in a school such as often happens at home the teacher was careless, of course. I cut this from a paper last autumn:

A SCHOOL TEACHER BURNED TO DEATH.

Fannie Kuapp, a teacher in one of the Sutton public schools, was fatally burned Monday because one of her pupils threw a lighted match under her dress. The flames spread so rapidly that she was injured beyond recovery before they could be extinguished, and she died in a few hours.

Not much was said about the unfortunate Fannie Kuapp. The public was not much concerned about her; she was nothing but a teacher, and she was paid a salary. It turned out later that it was the girl, a pupil, who had died; the teacher exposed her own life in trying to extinguish the flames; that was all. A good deal was said about the unfortunate child, but nothing was made public about the heroism of the teacher! If the accident had happened through any fault of hers how "our schools" would have been berated. No complaint is made of this tendency; the schools can stand it; they will grow better in consequence of it.

In contrast with the critics and the reformers, are those who expect of the public schools the miracle of universal, omnipotent, all pervading, ceaseless activity and influence. If a new mode of ventilation is devised, it must be applied at once to the public schools; every sanitary improvement seeks at once the public schools; every moral reform, temperance, sewing for the multitude, cookery, the society for preventing cruelty to animals, cruelty to children, cruelty to men and women, and everything, and the society to furnish top boots and fur mittens to the people of Borneo—all are no sooner provided with a chairman and secretary than they move at once upon the public schools to inaugurate the new benevolence. They estimate that one-sixth of all the population are in school; a very small contribution from each will aggregate a large sum; each child, when inspired with the new spirit, will be a missionary at home; and the whole community can in this way be moved. Like Sellers, they think "there's millions in it." Every good thing, they think, should be at once introduced into the public schools. The fact is, they can't all be introduced there.

A youthful citizen of a city where this sentiment prevailed full as widely as the Maine law was executed, had imbibed this spirit of the age, and too much of a spirit unfortunately not confined to this or any other age; he reached a conclusion which he announced in front of a saloon, with a slow and gloriously indifferent tone of voice, and with an air of lofty superiority to the ordinary utterances of mankind: "Whiskey's a good thing; it ought to be introduced into the public schools."

There is a class in the community which is possessed with the notion that all the school methods heretofore adopted and practised are wrong. Children must not be condemned to plod away in the old ruts. Let us make it interesting for the little folks. No more of the dull, dry study! No more poring over books. Study nature. Let the child go forth into the fields, beside the brooks, and "list to nature's voice"—all in a highly poetic strain. That is all very good in moderate quantities. But nature alone cannot secure good education; there is work in it, and work means sweat. There is, indeed, one easy road, down hill all the way. And you know where it leads to! The friends we are now describing make teaching almost wholly oral—what the Orientals would call "chin-chin."

There is philosophy, if not modern "methods of education," in the following:

Deer Isle, up near Mount Desert, has plenty of schools for the native children, but all the boys are rushed through the course at an early age and sent to sea, for which they are prepared by a course of navigation. One young chap had a teacher who was fond of natural history but did not know much about mathematics. One day, after she had given him a long dissertation upon a bee that had flown in at the window, the little fellow, who knew he could have at the longest only three months' schooling before going to sea, suddenly exclaimed: "I say, missis, 'scuse me, but I dunno as I care how a bumblebee's wings is made; I hain't no time for sech things; I want to know how to cipher!"

Turning, now, from the elementary schools, let us for a moment consider another class of "educators" who aim at a higher state than the ordinary mortal attains. In the classic shades of some ancient university, they pass through all the philosophy of the ancient classics; Greece and Rome they exhaust; they wing their adventurous flight to the prehistoric philosophy of the east; Buddha and Confucius they note in passing; and then they go on to protoplasm, the original germ of things, primordial cells, and the development theory of the physical man; and beyond this they advance to the primordial cells of mind, the essence of the uncreated *ego*, and the great First Cause, the ethereal, idealistic entity, or whatever it is called, the mother, the original matrix of the universe.

With these superior beings, so developed, etherealized, and sublimated, the ordinary affairs of the world dwindle into insignificance; the things that engage common men sink into nothingness. These philosophers affect an "indifference." In their eyes you see the dreamy, far off look which betokens the sage rapt in the contemplation of the great unknowable and the unattainable. They are often unsuited for the business, the pleasures, the achievements of this century and this age. To the question of the training of the young they come clothed in doubts concerning the possibility that the mass of men can ever attain that blissful state to which they have come. They give up as hopeless the attempt to raise the multitude; and so they confine themselves to the problem of opening the eyes of the select few who may attain Nirvana,

the blissful state of Buddha. This state, which they have reached, is thus set forth in the *Light of Asia* by Edwin Arnold, lately published:

Thus "finishing the Path;" free from Earth's cheats;
Released from all the skandhas of the flesh;
Broken from ties—from Upādānas—saved
From whirling on the wheel; aroused and sane
As is a man wakened from hateful dreams.
Until—greater than Kings, than Gods more glad!—
The aching craze to live ends, and life glides—
Lifeless—to nameless quiet, nameless joy,
Blessed Nirvana—sinless, stirless rest—
That change which never changes!

Let the demi-gods rejoice in that state and admit to it the few congenial spirits whom they can find. We want none of it in this country except as a spice, a condiment to mingle in little doses to flavor the body politic.

Another class of our friends seek in the public schools preparation for every trade and occupation in life. They confound the general preparation which we ought to give and can give with that special preparation which comes of long practice in actual affairs. Instead of a geography, they would substitute a plane; for a slate, they put in a hammer. This playing at work is a sham; the boy sees it to be a sham; he becomes a sham. True education is broader than that. Hear what Horace Mann said forty years ago:

Far above and beyond all special qualifications for special pursuits is the importance of forming to usefulness and honor the capacities which are common to all mankind. The endowments that belong to all are of far greater consequence than the peculiarities of any. The practical farmer, the ingenious mechanic, the talented artist, the upright legislator or judge, the accomplished teacher, are only modifications or varieties of the original *man*. The man is the trunk; the occupations and professions are only different qualities of the fruit it yields. The development of the common nature, the cultivation of the germs of intelligence, uprightness, benevolence, truth, that belong to all—these are the principal, the aim, the end; while special preparation for the field or the shop, for the forum or the desk, for the land or the sea, are but incidents.

Standing on this broad foundation, the development of man, the schools will be useful and rest secure. The contiguous territory of all sorts of trades in school is sand. Whoever builds upon it will see his house swept away. And within the proper sphere of public school education there is work enough to do.

Into this great mart, with the products of every land, float the peoples of the whole world. Here, the liberty loving Englishman escapes the restraints of an insular life; the sturdy Scotchman plants his family tree on this soil; the Irishman finds here the freedom denied him at home. Here the mercurial Frenchman and the phlegmatic German mingle, with a product better than either. Spain and Italy, Austria and Turkey, Russia and Sweden, Norway and Denmark, send their quota to make the city cosmopolitan. Asia, Africa, and the islands of the sea

make contribution to a society here, where all peoples, tribes, and tongues meet, and whence issue streams to flow all over the land. This city needs, the country needs, some alembic in which these heterogeneous elements shall be fused into homogeneity; some agent or force that shall transmit all nationalities into American citizens. That alembic is the public schools; that force is education.

Mr. MARBLE then read the announcements for the meetings of the week, and introduced WILLIAM T. HARRIS, LL. D., of St. Louis, who read a paper on "The present aspect of education," the manuscript of which has not been revised in time for this publication.

At the conclusion of this paper the department adjourned to meet the next morning at the hall of the Young Men's Christian Association.

SECOND SESSION — WEDNESDAY MORNING.

NEW YORK, *February 9, 1881.*

The second session was held at 9.30 A. M., in the hall of the Young Men's Christian Association. Mr. MARBLE called the meeting to order, and said that as the secretary and treasurer were absent, the first business would be the election of an officer pro tempore, whose duty would be to report the meeting, collect fees, &c. Mr. H. M. Harrington, of Bridgeport, Conn., was nominated and elected unanimously. Mr. MARBLE then introduced Superintendent Andrew McMillan, of Utica, N. Y.

Mr. McMILLAN said :

In the first place I propose to inquire whether statistics are necessary as aids to our work, and, if they are, then whether they ought to be specific and accurate in all respects, throwing away all estimates and getting down to exact facts; and, in the next place, whether they ought not to be uniform, so that we can make comparisons readily.

He then proceeded to read the following paper :

UNIFORMITY OF SCHOOL STATISTICS.

Statistical facts, however crude in character or limited in extent, have been recognized by all nations as the legitimate foundation for the operations of general government. These were at first collected in the simplest form, being merely an enumeration of the population, chiefly for the purpose of ascertaining the numerical national strength, for the purposes of offensive or defensive military operations; hence, the census of population may be reckoned as the progenitor of all statistical systems.

The establishment of governments brought also the necessity of providing means for their support; hence the imposition of taxes upon the resources, mainly the industries, of the country.

The collection of these revenues necessarily disclosed the social, physical, and intellectual condition of the people, furnishing data on which

plans of government were framed and operated. Thus, in a primitive manner, at a period far remote from the present, was laid the foundation for our present comprehensive system of statistics, to which we are very largely indebted for a fund of general knowledge.

As early as the fourteenth century statistical records were officially made, and of such importance to students of political science were they deemed, that elaborate works descriptive of commerce, population, &c., were compiled, published, and used as text books in the universities of the principal countries of the Old World.

In the sixteenth century valuable works on this subject were published from time to time, and widely circulated, some of them going through several editions.

From these small beginnings originated the system of collated statistical information, upon which all progress, whether scientific, physical, moral, or intellectual, is established and carried forward. Says an eminent writer: "That it is necessary for a government, in order to govern well, to acquire information upon matters affecting the condition and interests of the people, is obvious. Indeed, the civilization of a country may almost be measured by the completeness of its statistics. However rude the government may be, it cannot attempt to make laws without having acquired the means of forming a judgment, however imperfect, as to the matters brought under its consideration. In this sense, statistics may be said to be coeval with legislation." Although the value of statistical information was universally acknowledged, no action seems to have been taken looking to the establishment of an international congress of statisticians until the year 1853. At that period, however, delegates from the various representative governments of the Old World, uniting with our own, met in conference in Brussels for the purpose of effecting harmony and uniformity in the statistical work of nations. Much was accomplished for the object contemplated, which was, to enable each government to make comparisons readily and accurately with the others. The results prove that incalculable benefits have accrued to all from the efforts of this convention.

In our own country rapid advancement has been made in collecting and disseminating statistical information, both by the Government and various societies devoted to the purpose. If in private life an individual would be successful in business, he must at the close of each year know the exact condition of his affairs as compared with that of previous years, that he may thus be enabled to arrange his plans for the future. So, also, must a government annually ascertain the exact condition of all the departments of which it is composed. No legislator is competent to assist in framing the laws of a country without first having made himself familiar with the moral, social, and political condition of the people.

This knowledge can only be obtained by studying statistics relative to the material resources, industries, education, and other topics of his own country and of other nations. Thus only will he be enabled by com-

parison and study to recommend the passage of laws that will tend to the general improvement of his state or country.

In collecting statistics the government of course must take a comprehensive view of the needs of the several departments that unitedly aim at the welfare and prosperity of the country, each department, however, especially desiring to study mainly such matters as pertain to its special work. The agriculturist seeks information in regard to improvements in agricultural implements, the extent of the land under cultivation, its adaptiveness to certain crops. Statistics in regard to the extent and condition of agriculture will virtually control the market in bread-stuffs, not only here, but in foreign countries.

Manufacturing interests are affected by statistical knowledge of supply and demand; knowledge which also forms the basis upon which to extend commerce, build canals, conduct railroads, and found cities. It reaches far into every plan of social and political economy affecting the interests of individuals as well as communities. So in all departments of government is correct statistical information not only desirable, but absolutely indispensable.

In the department of education we may learn much through the regular channel of personal observation in our routine duty, we may experiment with the varied methods of teaching, adopt new plans of discipline, improve and extend the course of study, and by noting mistakes and remedying imperfections bring our respective departments of school work to a condition somewhat commensurate with our high standard; but much more could be accomplished were we able to add to this local knowledge general statistical facts bearing upon the subject, and collected from all parts of the country, which should serve as the basis of comparison and useful deduction. With the ample provision made by government for collecting facts connected with schools, it would seem that we have but to turn to official reports to obtain all desired information. But it is just here we are confronted by an obstacle of no small dimensions, and which so far as I know nowhere else exists in the wide domain of statistical research. I refer to the lack of uniformity in the methods of collecting facts and data pertaining to school work in the different States of the Union.

It is admitted in the outset that special acts adapted to widely diversified districts necessarily involve a large amount of detailed statement. But this detailed work can be so condensed and generalized as to become available for State and national reports. I refer now, however, to the irregular systems of keeping school statistics, which are not only apparently unnecessary, but render reports coming from the several States nearly useless for purposes of useful comparison.

Take, for example, statistics in regard to the legal school age as it exists in the various States. This is of course an arbitrary enactment, made for the purpose of securing an equal distribution of the State school fund among the various districts in just proportion to the school popu-

lation of each. But pecuniarily it can make no difference whether the limits of that age be prescribed as 4 and 21 or 6 and 18 years, since the pro rata will be the same in either case.

In illustration I cannot do better than refer to the last annual report of General Eaton, United States Commissioner of Education.

From this document the legal school age, as reported from 38 States, 6 Territories, 3 Indian reservations, and the District of Columbia, is as follows:

Of 5 it is from 4 to 21.	Of 1 it is from 7 to 18.
Of 8 it is from 5 to 21.	Of 1 it is from 10 to 18.
Of 9 it is from 6 to 21.	Of 1 it is from 5 to 17.
Of 3 it is from 7 to 21.	Of 1 it is from 6 to 17.
Of 2 it is from 4 to 20.	Of 1 it is from 4 to 16.
Of 3 it is from 5 to 20.	Of 2 it is from 6 to 16.
Of 3 it is from 6 to 20.	Of 2 it is from 5 to 15.
Of 2 it is from 5 to 18.	Of 1 it is from 8 to 14.
Of 3 it is from 6 to 18.	

From these data we find that 17 different periods of time are established as legal school age in forty-eight States and districts. For purposes of comparison it will be seen that this report of school population of the United States is not only valueless, but may lead to misapprehension and gross deception, as one or two examples will clearly show. The legal school age in the State of Florida is from 4 to 21 years, being a period of 17 years, while in the State of Texas it is from 8 to 14, or a period of only 6 years. Hence, we find a striking disproportion in these two States of children of school age as compared with the entire population.

Again, the State of New York prescribes the school age as from 5 to 21 years, while the State of Massachusetts limits it to 5 and 15 years. Again, referring to General Eaton's report, I find the school population of the State of New York to be 1,615,256 and the number of pupils enrolled in school to be 1,032,052, showing 583,204 persons of legal school age not attending school during the entire year. In Massachusetts the number of children of school age, according to the same report, was 297,202, and there were enrolled in school 310,181 pupils, being 12,979 more than the entire school population. Judging from this statistical standpoint the inference is clear that illiteracy is much greater in New York than in Massachusetts, which is not true, as the last published United States census report shows that the number of persons above 10 years of age who cannot read is 1 per cent. greater in Massachusetts than in the State of New York. Could the same school age be adopted in all the States, this difficulty and confusion in the comparison of statistics on this point would be avoided, and at the same time they would be just as useful for local purposes.

There is also a great difference in the manner of keeping the financial statistics, not only in the different States, but also in the different dis-

tricts of the same State. This often leads to unintentional injustice, especially in regard to the comparative cost per pupil for a year's tuition, as the comparison is made on the entire amount expended for all school purposes instead of on the current expenses. Tables founded on these reports are often arranged in years when some districts or cities have erected one or more school-houses, while in others no extra expenses have been incurred. Of course the tuition would be much greater in proportion in one case than in the other, as the new school-houses may cost as much in that particular year as the entire contingent expenses. Would it not be wise, therefore, to classify expenses under two general heads, as ordinary or current expenses and extraordinary expenses?

It seems to me there might be more uniformity in the manner of keeping the records of school attendance. In some cases the average attendance is made out at the close of each month, and the yearly average is compiled from these monthly reports; while others make the average for the entire year.

Again, there is a great diversity in obtaining the number belonging, some striking the names of pupils from the roll after an absence of five consecutive days, and others after an absence of ten days, &c. Perhaps this, however, is not of so much consequence, as all manage to get the average attendance on number belonging at about 98 per cent. I believe, however, that this average is not required in State reports, and ought to be stricken from all reports. The whole number enrolled and the average attendance are all that is needed for comparison.

I might go on and point out many other discrepancies in the present manner of keeping school statistics, but enough have doubtless been presented to show that reform is needed in this department of our work.

In closing, I will present for the consideration of this association the following outline for blanks for keeping school statistics sufficiently in detail for general reference, and which can easily be compiled from the more detailed reports that may be required in different localities.

ANNUAL REPORT FOR CITIES OR DISTRICTS.

1. Total population according to the last national or State census, ———.
2. Number of children between the ages of 6 and 16 residing in the ——— at the date of this report, ———.
3. Number of public schools in the ———, ———.
4. Number of private schools in the ———, ———.
5. Number of pupils enrolled in the public schools during the year. Boys, ———; girls, ———; total, ———.
6. Number of pupils enrolled in the private schools during the year. Boys, ———; girls, ———; total, ———.
7. Whole number of days' attendance of pupils in the public schools during the year, ———; boys, ———; girls, ———; total, ———.
8. Whole number of days the schools were in session during the year, ———.
9. Average daily attendance of pupils in the public schools during the year, found by dividing the whole number of days' attendance by the number of days the schools were in session. Boys, ———; girls, ———; total, ———.

10. Number of teachers employed in the public schools during the year. Male, —; female, —; total, —.
11. Number of teachers licensed by State authorities. Male, —; female, —; total —.
12. Number of teachers licensed by local authorities. Male, —; female, —; total —.
13. Annual salary paid men principals. Maximum, —; minimum, —; average, —.
14. Annual salary paid women principals. Maximum, —; minimum, —; average, —.
15. Annual salary paid men assistants. Maximum, —; minimum, —; average, —.
16. Annual salary paid women assistants. Maximum, —; minimum, —; average, —.
17. Number of volumes in public school libraries, —.
18. Total value of library, —.
19. The number of public school-houses in the — is: Frame, —; brick, —; stone, —; total —.
20. Total number of sittings in all the school-houses, —.
21. Value of school property:

{	houses, —;
	sites, —;
	furniture, —;
	apparatus, —;
	total, —.

FINANCIAL.

Receipts.

1. Amount on hand at date of last report \$
2. Amount received from State fund.....
3. Amount received from local tax
4. Amount received from all other sources.....
- Total

Expenditures.

Ordinary expenses:

1. Teachers' wages
2. Supervision
3. Janitors' salaries
4. Fuel
5. For ordinary repairs
6. School books
7. All other incidental expenses, such as printing, rent, &c
- Total

Extraordinary expenses:

1. For sites
2. For building and purchasing school-houses
3. For extraordinary repairs
4. For new furniture and apparatus
5. For new library books
- Total
- Amount on hand at date of this report

- Total
6. Assessed valuation of the city or district

7. Total tax for school purposes: { ordinary
 { extraordinary
 { total.....
8. Tax per dollar on the assessed valuation of the city, for ordinary expenses ..
9. Tax per dollar on the assessed valuation of the city, for extraordinary expenses.
10. Average expense per capita for year's tuition, based on number enrolled,
 including incidental or ordinary expenses

The discussion of this subject being laid before the meeting, Mr. STONE, of Springfield, Mass., said that he had listened to the reading of the paper with a great deal of interest, and was glad that other people were bewildered in attempting to compare the school statistics of the different cities. He did not see how this matter could be reached unless by compelling the adoption of a uniform system. He said that the populations of Springfield and Portland were nearly the same, while the school population of Portland was 10,000 and of Springfield only 6,000, owing to the difference in the school age in the two places. He thought that the per cent. or average attendance was often very misleading. He had only a day or two before visited a school where there were only twelve present, forty-four pupils having the measles.

Mr. McMILLAN said he thought the gentleman (Mr. Stone) had misunderstood him; that he had taken very broad grounds. He sympathized very much with Mr. Stone that there was not more uniformity especially in regard to school population.

General EATON said that different localities recognized school periods of different lengths for special reasons. He thought that children should be enumerated by years, from 5 to 21, perhaps, inclusive. Then there would be no difficulty in making comparisons. In 1870 the Bureau of Education had great difficulty in making its tables so as not to be misleading, but now, notwithstanding the differences in the school period in the different States, it was able to present tables of two hundred cities quite safe to study. General Walker has now collected his schedules for the census, and in them is contained the very information that Dr. Stone wants and that all want. He understood that General Walker had asked Congress for an additional appropriation in order to properly compile these schedules. In conclusion, referring to the high school discussion as a great question agitating the public mind to-day, he said that a foreigner coming to this country found the high school in our cities a distinctive American feature, one specially and most closely connected with the large intelligent class upon which the strength and vigor of American institutions especially depend, and added that a suitable method of reporting the facts connected with this grade of instruction is needed, so that it may be properly understood.

Dr. PHILBRICK spoke of the high estimation in which the school statistics of the United States are held in Europe.

Mr. SMART said that there was nothing so uncertain as facts except figures; that facts often lied and figures generally did; and so he thought there could be no subject which could be discussed to more

advantage than this. He said that a certain per cent. would be found enrolled in the public schools, and that Massachusetts was given as 110 per cent. because the children were enumerated from 5 to 15 years of age and admitted after they were 15. He thought that it was very necessary to have the information contained in General Walker's schedules, and moved that a committee of five be appointed by the chair to present this matter to the attention of Congress.

Considerable discussion ensued as to the number on committees and their duties, participated in by Messrs. Wickersham, Eaton, and Philbrick; and the chair (Mr. Marble) then appointed the following committees:

To memorialize Congress: J. H. Smart, Indiana; A. P. Stone, Massachusetts; Aaron Gove, Colorado; D. F. DeWolf, Ohio; M. A. Newell, Maryland.

Committee on the unification of school statistics: J. D. Philbrick, Massachusetts; J. P. Wickersham, Pennsylvania; C. W. von Coelln, Iowa; A. Parish, Connecticut; J. O. Wilson, District of Columbia; James P. Slade, Illinois; W. W. Waterman, Massachusetts; N. C. Dougherty, Illinois; E. A. Hubbard, Massachusetts; Andrew McMillan, New York.

After a recess of five minutes, Mr. MARBLE read invitations for the members of the association to visit a number of schools, and more especially the Normal College of the City of New York.

WEAK PLACES IN OUR SCHOOL SYSTEM.

Mr. MARBLE then called upon Hon. J. P. WICKERSHAM, State superintendent of public instruction of Pennsylvania, who said:

As the president is aware, I have no formal paper to read on this question. All I propose to do is to make a few remarks, pointing out with a friendly spirit such weak places as I have met with in the administration of public education. We have had very severe criticisms of late upon our system of education, from the outside. They do not receive from me any great sympathy, because they are written by persons very little acquainted with the public school system.

A prudent general before beginning a battle rides along the line for the purpose of ascertaining whether there are any weak places that the enemy might take advantage of. We are fighting the great battle of public education, the education of the people, and it has seemed to me that as superintendents it would be very wise for us to look along our line and see if there are not some weak places that an enemy might take advantage of in a close fight, in the close fight which is coming.

I have little sympathy with the recent book by "Gail Hamilton." As she looks at it, our system has too close an organization; the teacher is not free enough to work out his own individuality. These criticisms it seems to me are not well founded. She ought to have remembered that there is a kind of organization that builds up, and does not tear down

or repress; that organization is necessary in every great work; that nothing is accomplished without it; and although here and there this great machine may press heavily upon one or another, yet we must have a machine in education as in everything else, and machines are good things, even in politics, provided they aim at a high purpose. This book, Mr. President, I consider a weak book.

Then we have the criticism of Richard Grant White. Who is Richard Grant White? What does he know about our systems of education? Has he ever attended our educational meetings? What does he know, that he should undertake to pronounce our public school system a failure? What experience has he had that he can speak on this subject? I have no hesitation in pronouncing that paper of his, as published in the *North American Review*, as unworthy of the subject, unworthy of the author, and unworthy of the great *Review* in which it appeared.

He quotes as proof of these failures that the applicants at West Point have not succeeded as well in late as in former years. You and I know that this is not the fact. This has again and again been proven to be untrue.

First of all, I think it a weakness that school boards and school committees do not possess a greater knowledge of the subject of their duties. They are elected by the people in nearly all our school districts, large and small. I know there are a few exceptions. I think it a weakness that they do not possess more special knowledge in reference to the matter intrusted to their hands. These gentlemen are generally men of intelligence. They are good business men. They are lawyers, doctors, clergymen, merchants, farmers, and are generally selected judiciously; and yet their want of special knowledge is a weakness.

As school directors these gentlemen are intrusted everywhere with the duty of providing apparatus and text books. No one but a teacher, and no one but an expert teacher, is prepared to do this. Again, the duty of these gentlemen is to construct a course of study. This is one of the most difficult pedagogical subjects that we have to deal with. Then, too, they are to be the judges of results of teaching, of methods of education, and the selection of teachers, and yet they are not specially fitted for it. The only discovery made at Quincy was that the members of the committee were unfitted to deal with the question of public schools; but this was a discovery of the greatest value, and should be made known everywhere.

Now, Mr. President, I want to point out another weakness, that is, the want of more experts in the work of supervision. We have probably a thousand gentlemen holding the position of superintendent of schools in States, cities, and counties throughout this country. We need a larger number who will devote their lives to the business of supervising schools. The work of supervising schools in this country is not well done, is not thoroughly done. We need a much larger force. Probably no State in this country is better organized than my own. We have ninety-two

superintendents in my State, and they are all commissioned by the department of public instruction, and all work together as one man. But then we have not half as many in the State of Pennsylvania as we need. We must look to it all along the line, that wherever we can we may strengthen it. It is weak in this respect in Ohio and weak in Massachusetts and weak elsewhere. We should strengthen this right arm of the whole system.

Now, Mr. President, let me point out another weakness, which is that the status of the teacher in the United States of America is not very satisfactory. It requires high art to educate a child. It requires far more skill than to chisel out a statue or paint a picture. Yet, the most difficult art in the world, the most difficult of all arts, is to train a child up to be a man, a full grown man. How young the teachers are! How frequently they are changed! We have them about five years, and then they are gone. Their term is short, their salary low, their tenure of office uncertain. We should see to it that the status of the teacher should be more satisfactory. We should multiply our normal schools and make them better. We should increase our teachers' salaries and press forward the whole work of lifting teachers up to a higher professional plane.

I want to call your attention to another weakness, and that is, children are not kept in school long enough. Large numbers leave school at an early age. Many children simply learn the elements of reading, writing, and arithmetic. And should the public school system be held responsible for those that attend the public schools but for a day, or month, or year? You will find in the prisons of the country a large number of those who have been in the schools for a short period; very few who have graduated from high schools. More than half of the inmates of prisons have been at the public schools a short time, but have acquired only the mere elements of knowledge, and therefore the public schools are not to be held responsible for a weakness of that character.

And this leads me to point out only one other weakness, and that is, that we still want a plan by which those that do not go to school can be brought into school. I have not much faith in a compulsory law in this country; that is, by means of fines and punishments. But there must be a way, and we must find a way, to gather these children into some suitable institution. I think perhaps it can be solved in this way: by making it the duty of school boards as much to look after the children out of school as those that are in school. Then give them power to appoint an agent, half constable and half missionary, more missionary than constable, and bring them into the schools. School boards and teachers and good citizens can do much, and, to make their efforts fully effective, there ought to be schools for neglected children in all cities and thickly settled counties.

These weaknesses are of a general character. These are the points at which our system is weak, and which, if we want to win a victory

for education in this country, we must apply the necessary means to strengthen.

Hon. B. G. NORTHROP, secretary of the State board of education of Connecticut, said :

I will merely give a skeleton of the points I will urge. I think it is a point of great weakness that we have not in Washington a high school. It is necessary, if a high school be maintained in that city, that it should be supported by the National Government.

I think a cardinal weakness is the insufficient qualifications on the part of our teachers. If we can have throughout America well qualified teachers we shall rejoice. When the Bishop of Manchester was in this country, M. Hippeau, of France, was here also. Each made his report to his own government, declaring that in the schools of America the one defect was the lack of thoroughly qualified teachers.

I sympathize thoroughly with what has been said on the point of more competent and thorough supervision. Our schools suffer on account of too frequent rotation in office. It is exceedingly desirable that this business should not be influenced by political motives. This is a great damage to the system. On that point I need not enlarge.

Our friend has set forth the great weakness of non-attendance. It is a startling weakness, and we ought at once to prescribe a remedy. Every trade union is unanimous in enforcing compulsory education. I should deem a journey to the remotest corner of Connecticut amply repaid if it would bring in one child to the school.

I think one other point of great weakness, not in our system, but of teaching, is that developed in Quincy ; that is, they showed there that hitherto the greatest weakness in American schools was in the failure to develop power of expression. Girard used to say : "The mother tongue—the great educator."

Another point is in the dread, in the fear, which American teachers—and, I think sometimes, American superintendents—have of developing the memory. I do not hesitate to say that you cannot develop it too much. I would not advocate memorizing anything that cannot be understood. I *do* advocate the committing to mind of the gems of literature.

Mr. DEWOLF, of Ohio, said that it seemed that they were in the very infancy of knowledge in regard to remedies. How shall the status of the teachers in the country to-day be changed ? How shall the influence of teachers be made to be felt outside the school room ? It seemed to him that it was not enough to recapitulate these weaknesses, but that thought should be given to changing these things in the several States.

Mr. PARISH, of Connecticut, would not pretend to offer a remedy for all the difficulties considered. Good teachers are wanted. Where shall they be obtained ? Where is the power to demand good teachers

and provide the means by which they should be made? Liberal appropriations are wanted for the schools. In his judgment, if one single class of persons of the community could be reached, these weaknesses would be removed, and that class is the parents. Theirs were the children in the schools. They had the most interest in them; not the teacher; not the school committee. The teacher should go to the home and see what the father and mother think of the conduct of the child. If the parents can be reached, there is a beginning made to rectify this whole work.

Mr. SMART, of Indiana, offered the following resolution:

Resolved, That the Superintendents' Department of the National Educational Association, now in session, hereby tenders to the Hon. Thomas R. Cobb, of Indiana, thanks for his effort to secure from Congress adequate appropriations for the support of the public schools of the District of Columbia, and especially for his recent endeavors to secure an additional appropriation for the purpose of erecting a high school building in Washington, thus aiding in making permanent provision in the capital of the country for that most important part of our American common school system, the free public high school.

This resolution was adopted, and the meeting then adjourned, to meet in the same place at 3 P. M.

THIRD SESSION—WEDNESDAY AFTERNOON.

NEW YORK, *February 9, 1881.*

Mr. MARBLE called the meeting to order, and, there being no business to come before it, at once introduced Prof. CHARLES O. THOMPSON, of Worcester, Mass., who read the following paper:

THE CONSERVATION OF PEDAGOGIC ENERGY.

The doctrine of the conservation of energy has given a forward impulse to all the physical sciences. When Joule showed that heat can be measured in units of work, and Tyndall, following Faraday's pregnant suggestions, discerned the law under which heat, light, and electricity are grouped as modes of motion, all thoughtful persons saw that whole continents of truth lay open to exploration. Physicists arose and trimmed their lamps. Mathematicians contrived new algebras for this new service; foot pounds, ohms, and farads speedily became familiar words; innumerable phenomena which had been vagrants for lack of control came trooping into line under the new laws which had been rapidly announced. Even the inner sanctuary of thought has been invaded, and men are accustoming themselves to think of *thinking* as so much molecular change in the substance of the brain. The possible discovery of a physical method of recording thoughts from the molecular activity of the brain cells is no more to be dismissed as an idle vagary than the telephone and photophone were fifty years ago.

It is not remarkable that the brilliancy of the sudden and enormous gains in the scope of the sciences of matter should have obscured the

importance of the sciences of mind. Mankind have always studied first those phenomena which are most remote from themselves, and they have made steady progress towards themselves. Astronomy was a robust science, dwelling in secure round towers, when chemistry was born, and much more is known concerning chemistry than is known about the mind.

To such an extent have men been overpowered by the rush of new discoveries in physics that many have set about applying the methods of physical research to the phenomena of mind. This, of course, was a questionable process; but it is most natural that the quickening of mind produced by physical research should have extended over the whole field of thought, and that men should demand increasing economy in immaterial agencies when they saw the enormous gains in control and economizing of the forces of nature.

Those who think at all are becoming rapidly familiar with the methods by which physical science secures the most economical conversion of one form of energy into another, and are fretful over the results of school work. Without any thought of measuring an immaterial product by material units, it is yet impossible to avoid the effect which a habit of exactness in dealing with one form of energy has upon all thinking upon any other form. If by exact methods great economy has been secured in the conservation of physical energy, a reasonable and just demand is sure to follow for greater economy in the use of every form of energy. It is not difficult to explain the present critical temper of the public mind towards the public school on this principle; and this critical temper is full of omens of good, for criticism is directed, not against the end of the public school, but against the methods by which that end is sought; for, passing by the dreamers who would abolish discipline and have learning consist in an indolent absorption of agreeable information, and the wise men who would recall the mediæval seclusion of the learned, it is true that the masses of the people believe in public schools and sustain them by large appropriations in spite of recognized defects in the management of them. There is not the slightest indication in any quarter of any weakening of the faith of the people of the United States in the common school. Assuming, then, that the schools rest on a sure basis in the popular conviction of their necessity, I propose in this paper to inquire how the pedagogic energy now expended is uselessly dissipated, and how more of it can be converted into a better kind of man and woman.

A few definitions may help us.

Physical energy is the capability of doing work. It is either potential, as in a bent spring, when it can do work but does it not, or actual, when it does it, as in the spring released. The pendulum at the end of its swing has only potential energy; at the middle, only actual. Energy is the result of force. Of force we know nothing, except as it is revealed in energy.

Pedagogic energy is the result of teaching force. Of teaching force we know nothing more than that it is the power of one mind to awaken, keep alive, and direct a desire for knowledge in another mind. It is given in the structure of some minds. It cannot be imparted or acquired. At least there is no way known of doing this. It is an endowment akin in nature to that of the painter or sculptor.

It is often confounded with skill, but it is not skill, for this may be acquired by manipulation, as the skill of the file cutter or die sinker. Like any other similar artistic endowment it can be broadened by knowledge and deepened by training. Thoroughly well informed, discreet, enthusiastic, and conscientious persons can often simulate these traits and act upon other minds in a way much like that of a teacher, as Mr. Holley once won a wager by running an engine on a level track for a mile, without any fire or steam, by filling the boiler with compressed air. But the teaching force is instantly recognized when it is disclosed in pedagogic energy, though it eludes our analysis.

Like every form of energy, a large part of this is now dissipated. The conservation of energy is the conversion of the largest possible amount of it into other forms.

The end in view in a school is to make the most of the best possible teacher by giving his store of pedagogic energy free play upon the minds of his pupils.

All the many forces that are blended in a good school are auxiliary and subordinate to teaching, and are vainly spent without teaching. For example, the enthusiasm of numbers when not directed after it is awakened may result in squint eyed observation, in bad taste in reading, and in illogical reasoning.

Since our inquiries must be confined to the public school, let us put clearly before us the end in view of this school.

It has been urged, of late, that the only duty of this school is to teach children to read, write, spell, and cipher. This is obviously not the chief end of this useful institution. If it were, it could be secured at vastly less than the present cost. But while this may be conceded to be the direct object of public instruction, there is an indirect object of at least equal importance: I mean the formation of those habits of thought, that proper regard for the rights of others which can only be obtained through daily intercourse in the pursuit of a common end, and that habitual obedience to law which are the conditions of good citizenship in a republic, and an enthusiasm for righteousness. The public school exhibits worth as the only ground of distinction; it blends, in the formative training of early years, all those subtle but energetic forces that children from one rank exert upon those of another, and it gives full scope and efficiency to those *leges non scriptæ* which embody and transmit the net result of ages of civilization and enlightenment, so that the expense of teaching the worst scholar examined by Mr. Walton, for instance, would be amply justified, if that scholar should leave school now, by his

enhanced value as a citizen at the age of twenty-one. For the full results of school life are not capable of measurement by an examination in spelling. The commonwealth cares vastly less about this boy's misspelling his words, making hieroglyphs for letters, and hesitating in his reading than about the kind of man he will be when he comes to vote. And while the kind of man he will be depends somewhat upon the joint action of the enthusiasm of many in a common pursuit, the family, the library, the church, and that most subtle power of personal character, it remains true that good teaching is the greatest and most influential force that acts upon him.

How to make the most of good teaching is the simplest form of our inquiry. Inquiring how teaching is squandered, I call your attention first to the lack of logical sequence in the kinds of work assigned to different grades in the graded schools.

Pupils reach the grammar school unable to add, subtract, multiply, and divide with rapidity and absolute accuracy, destitute of ability to observe natural phenomena sharply and to record their observations in clear and exact language, and with poverty stricken vocabularies. The grammar school is obliged, therefore, to leave its proper work and prepare for it. If all this work were done in the lower schools the grammar school could at once teach technical grammar, the science of arithmetic, and the lessons of history. These branches are referred to as those where reform is most needed.

Philosophers have urged again and again the reasons found in the nature of things for recognizing the order of the mind's growth and the faculties which predominate in childhood as the guiding principle in primary instruction, and they have been supported by a mass of testimony from successful and observing teachers; but hundreds of schools are now taught in ignorance or in defiance of these principles at an enormous waste of time and money.

Why should not technical grammar be excluded from all schools below the grammar grade? Why should not oral lessons in some natural history science—any one that the teacher knows or can be induced to learn—be substituted for the book lessons in grammar which are now inflicted on children, and managed so as to achieve and to secure that ease and fluency and accuracy in the use of words which are the essential quality of a good style?

A good deal of time is spent in our Massachusetts schools in reading; yet, those who examine boys for admission to higher institutions, or who guide their studies there, find that very few know how to read. Of course all know the common words and can call them by name; but very few know how to use books as sources of knowledge. Why should not the thorough reading of even one good author be substituted for the reading book in grammar schools, and so the shaping power of a good style be coördinated with other studies? All good teachers will welcome the new departure in library management by which pupils in

the common school are guided by their teachers in the choice of books and in the right and proper use of them.

To specify a practicable case, why should not reading be partly done out of some history of the United States, like Higginson's, and joined with brief exercises in narration, either oral or written? It is not necessary to furnish every pupil with a book. Two or three copies are enough. This exercise might profitably replace fully one-half the current drill in reading books, with the following advantages: The lively interest of the pupils would be excited, additional and most excellent practice in the use of language would be secured, and the *facts* of history would be fixed in the memory without much effort. This would make history teaching in higher grades a much nobler exercise than it is at present. It would also tend to cultivate a taste for good English by bringing the minds of pupils under the influence of a good author in successive lessons; for no better way could be contrived to arrest and paralyze any tendency to such a taste than the exclusive use of reading books, in which the unhappy pupil runs a muck between two rows of authors, who pelt him with prose from one side and poetry from the other.

There are schools where each of these proposed methods is on trial with such abundant good fruitage as to warrant serious attention to them. Why should not the work in arithmetic be courageously confined to acquiring skill, accuracy, and rapidity in simple computations up to the grammar grade? It is a just complaint that boys and girls who have graduated from the grammar or even the high school cannot add and divide with accuracy and promptness. And if any one can state any good reason why more than half the current requisitions in geography should not be abandoned, a large number of parents would be deeply grateful.

Another waste is the useless expenditure of time in teaching drawing, through all the grades, to every pupil. Somewhere, wherever the wisdom of school superintendents determines, this should cease, and those who evince marked aptitude for drawing should be gathered in evening classes for special instruction by an expert teacher.

Another waste is the enormous overloading of the primaries. A good primary teacher can teach thoroughly about thirty pupils; but the rooms in towns and cities where she has less than fifty are the exception rather than the rule. It follows that the pupils pass up without adequate training, the primary work must be done over, and, of course, the inadequacy of preparation increases at every stage.

It is the common judgment of teachers in secondary and grammar schools that they could do substantially all the work now assigned them if the primary work were well and thoroughly done. That it is not so done is not the fault of the primary teachers; at least it cannot be shown to be their fault so long as they are doomed to the tale of bricks without straw.

Nearly all the evils which afflict our public schools can be traced

directly to a root in the primaries, and a reform here means reform everywhere. The great problem of public instruction is how to effect such a reform. If we propose to increase the number of primary schools we are met by the obvious fact that no great increase in the amount of appropriations from the public treasury can be expected. It is at least a striking coincidence which seems to have the cogency of a law that the amount expended per scholar in the public schools does not exceed the rate of taxation per thousand. It sometimes falls below this limit and sometimes exceeds it by a dollar or two; but whenever it exceeds, a retrenchment scene is sure to follow.

It is necessary, then, to do better work with the means now in hand. I think it easy to show that if each primary school that contains more than forty pupils were divided into two equal parts, and each part taught by the same teacher a half day for the same number of days as now, every pupil will be better fitted for the next grade than he is now, and the teachers would not suffer any greater loss of vitality than now. Probably the teachers would gain by the change rather than lose, in spite of the additional hour per day.

The unoccupied half of the pupils could be provided for in two ways: a large part of them would remain preferably at home; but the other part whose parents cannot easily provide for them must be gathered into half time industrial schools. This arrangement would put an end to what is now the gravest evil in the primaries, namely, the conversion of the school room into a place of temporary refuge for children whose parents are unable to care for them. There is no reason why the school should be turned into a day nursery. It is wiser and more simple to deal with the evil than to evade it. The public is bound to care for poor children. Let the school do its work in its own way, and let the best thing be done for those children who ought to be provided for at the public expense. Let us frankly introduce the *crèche* and not hide it under the guise of a primary school.

It will not lead us very far from the point we are now considering to suggest that in every grade of school teaching energy is wasted in proportion as the number of pupils assigned to a teacher exceeds a very low limit. The enthusiasm of large numbers in the pursuit of a common end is a most valuable auxiliary, and cannot be dispensed with; but, when class work begins, a very small number, ideally from ten to fifteen in a class, are all that any teacher can spend himself on without loss of energy. This, at least, seems to be the lesson of experience. The exigencies of the public school seem to fix the minimum limit at thirty. It is very common to hear good superintendents adduce a small number of pupils per teacher as proof of the soundness of his administration. But by far the most striking and instructive example of the advantage of small numbers is the work done at the United States Military Academy, at West Point.

It is most useful to study the results of the course of study in the

United States Military Academy as a problem in education. Boys are received on precisely the same grounds as give them admission to our high schools, are taught for the same number of years in the same essential branches, and emerge accomplished engineers, ready to cope successfully with the severe difficulties of military science; the boys emerge from the high school without readiness for anything except college. The difference is explained when the fact is stated that the teachers at West Point are selected for their known excellence as teachers, and no one ever undertakes to teach more than twelve students at a time. There is no evading the force of these facts.

West Point has done a better and nobler work for education than for arms, but this inspiring achievement in education has been strangely overlooked.

Let me not be understood as urging that West Point can be transplanted into our common schools or that it ought to be exactly imitated; but it cannot be forgotten that the Military Academy has been sustained by large appropriations by the people of this country through all the vicissitudes of party politics, because it has done well and thoroughly its appointed work. It is, in an important sense, a public school. The people, therefore, can be relied on to sustain good work. And the great example of West Point as a success in pedagogy may teach us that training is a higher end than the diffusion of information, and that the methods of instruction which have proved efficient and successful in any school are worthy of careful attention everywhere.

It is impossible to avoid alluding in its turn to the strange neglect of the memory in our public schools. Nothing strikes an American observer of European schools more forcibly than the easy recitation by pupils of extended passages from good authors—an exercise almost unknown among us. In reacting from the danger of overtaking the memory the pendulum has swung to the extreme of neglecting it.

Another waste of teaching force is the substitution of general intelligence for mastery as an end in view. The American boy now aims at knowing something about everything instead of everything about something, so that the number who come to real life with a consciousness of mastery is annually diminishing.

The quick instinct of students of social science detects this quality, and such inquiries as this begin to appear: Who will succeed the poets Longfellow, Lowell, and Holmes? The orators, Phillips, Curtis, Bullock—all men advanced in life? Are “great men” disappearing from politics? The weak answer is sometimes essayed that the average attainments are so high that greatness has become impossible—as if excellence were an absolute instead of a relative quality.

It is time to inquire with great earnestness whether our systems of public instruction have not begotten in us a certain confidence in the educating power of a system, apart from teaching, and whether in the necessary solicitude about school-houses, text books, charts, ventilation,

&c., we have not overlooked the fact that all these things are subsidiary to teaching, and without it are wholly futile.

I have sometimes felt a grave fear, when I have observed the immensity of our new school buildings and our carelessness about the school teacher, that the historian of education a thousand years hence will style this the age of the mound builders.

The words of Professor Weir, in the *North American Review* for January, 1881, deserve serious consideration :

I declare it to be a fact that just as the prevalence of mechanical agencies in manufacture has destroyed all personal skill in handicraft, * * * so do these vast educational machines, when divested of personal sympathies and personal impulses, tend to a like result in developing the mind.

This want of mastery in the graduates from the schools is the grain of wheat in the bushels of chaff about the lack of practical worthiness in them.

How shall we render the course of study more practical ? I answer, first, by taking out a good deal of it and securing something like mastery of the rest. A boy who has mastered a few fundamental things is far more likely to become soundly intelligent than one who has been mastered, as most now are, by a good many things. Fewer studies better taught is the remedy for this evil. There are two special cases under this head which deserve notice. The high school is said to unfit boys and girls for practical life. "It is for the good of the commonwealth that, while nature is yet plastic, children should acquire the manual dexterity and the habits of patient, persevering labor which are essential to their happiness and their success."

This is all true, in a sense. It is true in many cases that the high school graduates are fish hooks not bent on to any lines. But all attempts to cure this evil by introducing what are called more practical studies have failed. Book-keeping, laboratories, and cabinets leave the sore unhealed. The mistake lies in this substitution of smatter for knowledge, and if every high school scholar who is not fitting for college should conclude his course by reviewing arithmetic, including all business forms, in the light of all the algebra and geometry he has learned, his geography by the aid of his physics and chemistry, his history of the United States illuminated by all his acquirements in general history and civil polity, and his English grammar and literature in comparison with all other grammars and literatures he has any knowledge of, he would have a little real knowledge—a taste of the joys of mastery.

Thus reflecting upon the common branches which are so vitally bound up with the common concerns and interests of men the light of all the higher knowledge which scholarship can acquire, we shall brighten and clothe with a new attractiveness the labors in which the great majority must spend their lives—

Blessing toil, where toil abounds, with graces more abounding.

The second special case is that of those who, justly dissatisfied with the apparent tendency of the schools to create a distaste for labor, propose to incorporate handicraft in the curriculum.

This measure does not proceed from a just comprehension of the nature of the evil it aims to cure, and will not be successful.

It is sheer weakness to lay to the charge of any school the unwise discontent with plain living, the haste to be rich, the foolish rivalries, and the general desire to secure a livelihood without working for it which are as old as civilization and apparently inseparable from it.

Boys and girls always have sought to win the easier and more agreeable employments. They always will do this. The irreverence of youth, enhanced as it is by the relaxation of family discipline, and their impatience with the slow and toilsome beginnings of all solidly built lives, need to be restrained by patiently showing and illustrating and enforcing the more excellent way of obedience, industry, and method; but it is not a ground for sudden and novel changes in school systems. It is aggravated by the monstrous defects in home training and by the pollution of the atmosphere with filthy literature, but it is somewhat corrected and relieved by the regular sober discipline of the public school. For the only hope of success in this world lies in obedience to law; the only preventive of idleness is a habit of industry founded on an obedient spirit. Otherwise, skill in handicraft is no security against thriftlessness or vice. Every one who is at all familiar with large manufactories knows that one of the constant drawbacks is this: many skilful men, upon whom at critical moments everything depends, are liable to be overcome by appetite, and waste in idleness time which is more precious to employers than to them.

The real practical question is, whether the youth who seek the avenues of trade shall be intelligent and thoughtful citizens, able to bear adversity with courage and prosperity without exultation, or brawling grumblers in hard times and foolish dreamers in good.

Again it is urged that youth would be allured to the mechanic arts by daily familiarity with them in the school room, and those endowed with aptitude for handicraft would be detected by the test and assigned each to his proper calling. This result, if attained, would only prove a good so far as skilled workmen were evoked by it; for there is already a great excess of unskilled labor. But why create new attractions when the old are great and mighty? What assemblage of mechanical processes could be made in any building to affect the imagination or wake a slumbering aptitude which could compete with the exhibition which every town presents? The air is lurid with the smoke of countless furnaces; every stream is worried with dams; the din of machinery on the grandest scale sounds an incessant call; thousands of workmen go as daily messengers between the shop and home, and make familiar in daily speech the marvels of mechanical achievements. No sober and inquisitive youth is denied access to mechanism of unbounded variety

and interest. This spectacle is not limited to a few hours of a crowded school day; night and day are filled alike with its wonders.

Libraries abound in biographies of the great inventors, and every thoughtful boy can feed his imagination with the achievements of Arkwright, Whitney, and Bigelow. This is the real developing school. This face to face communion with men of like sympathies and passions excites the growing boy more than lathes and engines and spindles. In the peaceful fields of mechanical triumphs, not less than on Marathon, the trophies of Miltiades will not permit a single young hero to slumber.

The ranks of skilled labor in ordinary times are never crowded; but a reasonable man will pause before urging a scheme which must end in increasing the number and diminishing the intellectual resources of unskilled mechanics.

Consider again that this demand for a class restriction in public education does not spring from mechanics and manufacturers, but mainly from those who have been able to command whatever education they desired, and it is very much to be feared that the gentlemen who urge this plea of overeducation, and propose manual training as a cure for it, are, perhaps, unconsciously cherishing the illusion of class education in a republican state, and must be challenged to answer Madison's question, "Why should we, here, in the realm of knowledge or in the public provision for the education of all, divide society into classes upon the ever vanishing line of rich and poor?"

And consider that mere manual training will not suffice. It must be allied to machinery to be effective, and the teachers of our public schools will presently find themselves superintendents of machine shops; otherwise the graduate of the school is in danger of turning out a tinker. If you still claim a disciplinary value for the proposed manual training, this will not be denied. Neither will any one claim that every hour spent in school workshops is so much actually subtracted from the result of school training. But it is not, on the other hand, so much added; and it is incumbent upon the reformer to show what the actual gain to society is through handicraft to balance the necessary loss in intellectual training. The average pupil of the public schools now receives, at the public charge, 166 weeks' instruction of 30 hours each, or about 3 years. Is this too much?

This has not been shown, and I do not think it can be. If it be demanded that the public school should cultivate and enforce habits of industry, self restraint, personal independence, and regard for others' rights, or if it be claimed that the public school can be improved, no one will demur. Great improvements are making, and more can be made; but it is one thing to relieve the difficulties of a good and useful institution and another to aggravate those difficulties by increasing, without improving, the labors imposed upon it.

(1) The general intelligence which springs from the State school is as indispensable to a good market for the products of our manufacturing

skill as it is to that skill itself. We export cheap prints only to the ignorant populations of Africa and the South Seas; but only the finest products of our most skilful workmanship can enter England and the continent of Europe. The home market is equally sensitive; and if we want to sell what our skill produces, we must not paralyze the market.

(2) The amount of school time cannot be much increased. Whatever is taken from it for handicraft would be subtracted from the effectiveness of the school in other directions; and the actual amount of instruction which the average child of the working classes receives has already been shown to be too small rather than too great. By introducing handicraft, supposing it feasible on other grounds, we should do a great wrong to the average scholar and a great injury to handicraft. And consider how trifling at best is the amount of real craft a boy could get in a State school. It would vanish like the frosty coating on the iron which, in a winter morning, he carries to his forge. Knowledge of tools he can easily get in his shop after his school is past, and all the easier for a sound school training. But how, or where, or when shall he repair his loss of the things the school should teach him? These precious hours once gone are gone forever.

It is better, then, to pour all possible vigor, intelligence, and hope into the nerve of the arm which is to smite the anvil than to clothe that arm with any momentary gloss of unserviceable dexterity.

(3) The atmosphere of the school-house is unfavorable to handicraft. The sort of workmen and the sort of work by which an artisan is surrounded during his period of training have even a larger share in determining the quality of his skill than the environment of a school in the formation of character. Workmen trained in any well known shop bear the unique inscription of that shop almost as plainly as the fabrics whose excellence gives at once its reputation to the shop and special value to the services of the men. Workmen not infrequently deteriorate when transferred from a better to a poorer shop. The environment of handicraft is a matter of vital importance.

Again, it is essential to success in teaching the industrial arts blended with intellectual training in a school course that the two should be started and carried on with harmony and equal prominence. The school must have but one end, and towards that all its forces must move. Nothing can form any part of the school which does not share its common life and partake of its common advantages. The parts of a good school are like the parallel bars of a compensating pendulum, the contraction of one balancing the expansion of another to give the exactly measured swing of perfect synchronism.

Only a small part of the pupils, under the most favorable circumstances, would take this practice of choice; and it could not be enforced upon all on any principle of equity. No Carthusian vow can be imposed upon the youth of the public school. The result must be the appearance in the school of a caste, which would be instantly fatal.

All manual training in the use of tools given in this unnatural atmosphere would be feeble and ineffective. The inadequacy of the scheme would be detected more quickly by the pupils than by supervisors, and would engender disorder and discontent.

Neither philosophy nor the common sense of the people decides that manual training is necessary for all pupils or essential to the public welfare; therefore the people cannot justly be taxed for the direct support of institutions which benefit only a class.

The first method applies in practice only to reformatory institutions. Beyond that, the state may and should foster by grants all useful institutions, and directly support through annual taxation only those which are essential to its perpetuity and which could not safely be left to private management. These latter are the public schools; and, while the exact line between essentials and non-essentials in public education has not been clearly drawn, yet the term "public schools" is sufficiently clear and distinct for all practical purposes.

We reach the conclusion, then, that the union of handicraft and school must be committed to special schools of technology, founded by private munificence and directed by permanent boards of management.

(4) Time forbids me from enlarging upon the waste of energy caused by inadequate libraries. This want grows less severe each year. Indeed the growth of the free public library as a means of utilizing the intelligence which the schools create is one of the features of our times.

(5) But all that has been said prepares the way for urging as the last form of waste the inadequacy of the preparation of teachers for their work and of proper supervision. The teacher is, after all, the school, and the school the teacher. Without this force all other allied forces slumber like the chemic forces of the plant till quickened by the light. Great attention is given, and too much cannot be given, to the professional education, selection, and supervision of teachers.

But it has already occurred to some that the force of the teacher is not all commuted into knowledge, but that a large part is spent in enthusiasm—the affiance of light and heat. A good teacher can no more fail of enthusiasm than the sun can shine without heat. But the heat of enthusiasm is not to be disjoined from the light of knowledge.

"The public schools are the people's universities," it is said, and we must give them a taste of everything that anybody knows. But the people have a right to knowledge and will not be denied it, and the people will in the end hold those to strict account who, charged with the solemn duty of providing what is best, took counsel of expediency or of fear. The people expect educators to recommend such measures as philosophy dictates, experience approves, and common sense supports.

After the reading of this paper the chairman gave an opportunity to any who might desire to discuss either this subject or the subject of the morning.

Superintendent JONES, of Erie, Pa., thought that the Military Academy at West Point, though a school supported at public expense, had two or three advantages over most public schools: it could compel its pupils to take its course of instruction entire; it dealt with healthy pupils only, and it could eliminate the stupid or vicious from among them; whereas public schools are obliged to instruct children, healthy or sickly, bright or stupid.

School Commissioner KING, of Richmond Co., N. Y., thought that West Point could be abolished and that just as high a grade of officers would come up, and that, too, from the public schools. There should be more competition among line officers. In his opinion if the positions in the Army were thrown open the public schools would furnish officers as good or better than now come from West Point.

Mr. NORTHROP said that America had received a full equivalent for every penny expended on West Point, and the idea that any public school could take its place was preposterous and absurd.

J. G. MURPHY, of Fishkill, N. Y., advocated the use of the perceptive faculties. He said that all children should not be treated in the same way; that a school of thirty pupils would have from three to seven different classes of capacity.

Dr. THOMPSON explained that he presented West Point as an institution to be imitated by the public schools from the fact that it had done thoroughly and well the work it had undertaken. Students entered West Point at about the same age that they enter the high school, but much more is accomplished at West Point. Teachers who desire to accumulate teaching force he thought would do well to study West Point.

After a recess of five minutes Dr. FRANKLIN B. HOUGH, chief of the forestry division, Department of Agriculture, Washington, D. C., read the following paper:

OUR SCHOOLS AND OUR FORESTS.

In presenting a subject with this title, the question might be asked by some, "What possible connection can be traced between our schools of learning and the woodlands of the country?"

The Germans term a nursery of young trees a *Baumschule*, a "tree school," and nobody will deny the strong analogy that exists between the early direction imparted to the young scholar in our schools and the young seedling of the nursery bed, both alike receiving in the tender and susceptible period of life's beginning certain tendencies that influence all that follows to the end. This analogy was forcibly expressed by Pope in the familiar lines:

'Tis education forms the common mind,
Just as the twig is bent the tree's inclined;

and imaginative writers have in all ages and in every language found apt opportunities for illustrating the various phases and vicissitudes of

human life by what may be learned from a tree. But dropping these fanciful analogies, which the active mind may follow to infinite extent, we will at once enter upon the more serious consideration of a subject that is beginning to attract the notice of thoughtful men, viz, the rapid diminution of our forest supplies and the means by which the wants of a near future must be supplied.

We assume that no one will deny as facts that the woodlands of this country are being cut down and used or are suffering from waste in a much greater degree than they are being restored by natural growth; that the maintenance of a due proportion of forests is highly important, in fact indispensable to our wants, and that this limit has in many sections of the country been already reached and passed.

We think no one will deny that the clearing off of woodlands causes the springs and streams of a country to diminish and often disappear in summer; that the channels of mountain streams become eroded by torrents when the forest protection is removed; that streams once perennial and nearly uniform become liable to great alterations in volume and to sudden overflow in heavy rains; that the supply of water for cities, for hydraulic power, and for navigation becomes irregular and deficient at seasons of the year when most needed, and that our fields, unshaded from the sun and unsheltered from drying winds, become liable to destructive droughts.

But, besides these secondary effects, we should especially notice the growing scarcity of wood and timber as a material for use and an article of commerce in regions where it was once abundant, and the effect of this upon their prices, which are constantly tending to further increase as these supplies become less.

In view of these facts let us at once proceed to inquire as to the duties of our schools in reference to our forests. This question of forest supplies has for a long period engaged the attention of governments older than ours, and we should be able to profit from their experience, applying such modifications as differences in government and circumstances may suggest in order to adapt them to our own peculiar wants.

We find in Europe that in every principal country upon the continent the woodlands belonging to the government and to local municipalities and public institutions are under the care of a special branch of administration, which not only looks after their management to prevent injury or waste, but has for its especial duty to secure the restoration of forests when cut at full maturity or at appointed times, and this by means which shall most effectually secure the greatest possible benefit that the conditions allow. This management implies the necessity of a well organized corps of agents specially educated to the duties of their profession, and for this preparation there have been established schools of forestry in every country that has a forest administration, and these schools have been provided with full appliances for rendering their operation complete. At these schools of forestry every branch of science that finds applica-

tion in the cultivation and care of woodlands is taught and illustrated by excursions and practical labors in the nurseries and forests connected with the establishment. The attainments of the student are tested upon entering and at leaving, as well as at various stages of his progress, and at the end of his prescribed course he is ready to enter the forest service upon a subordinate grade, from which he may rise by successive steps to more important stations. Finally, having spent his working years in the service, he is entitled to retirement upon a pension; and, if his career has been one of especial merit, honors and distinction are awarded him.

As the course of instruction in these schools is strictly technical, the range of studies extends no further than to include the sciences that concern the forester's profession, including the legislation and jurisprudence of the forest code, the details of official business, and a knowledge of his duties in the transactions that may come before him in the various stations which he may be called upon to hold. The course varies somewhat in different countries, owing to differences in their forest laws, but it is substantially the same so far as depends upon mathematical principles and upon the natural and physical sciences that are taught.

To illustrate the range and extent of the course, we will present a list of the professorships and of the studies taught by each in the Forest Academy at Tharand, in Saxony, one of the oldest in Europe, and therefore one in which we may expect to find the fruits of long experience embodied in the course of instruction now in use.

This school was begun at Zillbach in 1786, was more formally established in 1795, was removed to Tharand in 1811, became a public institution in 1816, and from 1830 to 1870 was a school of agriculture and forestry combined. For the last ten years it has been a school of forestry only, and has an attendance of from fifty to seventy students, almost one-half of whom are foreigners attracted thither by the excellence of opportunities and ambitious to qualify themselves for the position of foresters to large estates or for employment in the forest service, now becoming more common under colonial governments. There is as yet no school of forestry in Great Britain, but much attention is now being given to the conservation of forests in India and other remote British colonies, and the agents aspiring to these appointments must resort to these special schools upon the Continent, whereof Tharand gets a considerable share.

The academy is under the ministry of finance, and its course of instruction extends through two years and a half. The student must show upon entering, besides certain qualifications as to age, means of maintenance, &c., the attainments implied in a full course of study at a Gymnasium or a Realschule, and if he aspires to the Saxon service he must have worked half a year under approved instruction in a forest.

The course is divided among ten instructors, as follows: (1) the director,

who teaches the history and literature of forestry, forest regulation and improvement and police, and leads in certain excursions and practical exercises; (2) a professor of arithmetic, algebra, and geometry, and their applications to forest work and mechanics, accompanied with mathematical exercises; (3) a professor of chemistry and chemical technology, agricultural chemistry, and laboratory work; (4) a professor of physics, mineralogy, and geology, who leads excursions in the application of these studies; (5) a professor of forest cultivation, protection, and administration, hunting, and forest taxation, with practical excursions and exercises; (6) a professor of general and forestal botany and vegetable physiology and microscopy, with exercises and excursions in natural history; (7) a professor of surveying, road making, draining, the calculus, &c., with excursions in surveying and measuring; (8) a professor of general forest industries, forest finances, and an encyclopedic view of agriculture, pasturage, &c.; (9) a professor of zoölogy, and especially of entomology; and (10) a professor of law and forest jurisprudence.

There are connected with the academy a large library, an extensive and valuable cabinet, a forest garden, and a forest district in which all the practical details of regulation and management are going on and with which the student must become personally familiar.

At the French school of forestry, at Nancy, the student must learn something of military discipline and regulations, and in the Russian schools of forestry the military organization is carried still further and pervades the whole forest service.

At Eberswalde, in Prussia, one of the best of forest academies, 2,648 hours are given to instruction, extending through two years and a half, or a little less than five hours a day, of which 840 (about 32 per cent.) are given to the natural sciences, 440 (about 16 per cent.) to mathematics, 980 (about 36 per cent.) to the economical sciences, 180 (about 6 per cent.) to jurisprudence, and 340 (a little over 10 per cent.) to exercises and excursions.

The following is proximately a list of the schools of forestry now existing in Europe:

(1) *Schools of forestry alone.*—In Prussia, one at Eberswalde and one at Münden. In Saxony, one at Tharand. In Saxe-Weimar, one at Eisenach. In Austria, secondary schools at Weisswasser in Bohemia, at Eulenburg in Moravia, and at Lemberg in Galicia; lower schools at Aggsbach in Lower Austria, at Wildalpen in Styria, and at Kreutz in Croatia. In France, one at Nancy and a School of Forest Guards at Bavas. In Italy, one at Vallombrosa. In Spain, one at San Lorenzo del Escorial, near Madrid. In Russia, one at Evois, Finland. In Sweden, one at Stockholm.

(2) *Forest departments in universities and polytechnic schools.*—In Bavaria, at Munich (lately a separate forest academy at Aschaffenburg, which is still in part retained); in Hesse-Darmstadt, at Giessen; in

Baden, at Carlsruhe ; in Brunswick, at the Polytechnic Institution ; in Switzerland, at Zürich.

(3) *Academies of agriculture and forestry*.—In Austria, at the special high school, at Vienna ; in Württemberg, at Hohenheim, with a special course at the university in Tübingen for those aspiring to a place in the administration ; in Russia, one near Moscow, one at St. Petersburg, and one at New Alexandria in Poland, with a special school of applied forest industries at Lissano ; in Portugal, near Lisbon ; in Denmark, at Copenhagen.

(4) *Academies of mining and forestry*.—In Austria-Hungary, one at Schemnitz. Besides these special institutions, about thirty in number, at which the profession of forestry is made a particular object of instruction, there are a multitude of others in which the importance of the subject is recognized and more or less provision is made. Thus, at three of the agricultural schools in France, an agent of the forest administration is detailed for this instruction, precisely as our own Government details officers from the Army for giving military instruction in some of our colleges. There are at least seven schools in Sweden at which a course of one year in forestry is taught, and ten years ago there were thirteen elementary schools of forestry in that country.

A few years after the Crimean war the Turkish government undertook to establish a school of forestry at Constantinople, and one has been founded recently in India, for the purpose of fitting the agents of the government for an intelligent performance of their duties.

Such being the provision made in other countries for supplying an educational want in their public economy, of which they had felt the need and without which they would have suffered an injury, let us next consider how our circumstances compare with theirs and what are our duties in view of the prospect before us.

As for our wants : If we take into estimate the prairies and the plains, as well as the immense clearings in the older States, we shall find, probably, in the whole country, a relatively smaller percentage of woodlands available for us than that of either France or Germany, where the organization of the forest service is the oldest and most complete, and in some of our newer States and Territories relatively much less than the most poorly supplied country in Europe. It is true that our native supplies are very unequally distributed, and that in some regions they are largely in excess of the present local want. In other sections of the country the timber is at present altogether inaccessible by any existing means of transportation, and in others it is so remote that the expense of freight cannot be borne until the present market prices have greatly advanced, and it will be a sad day for those concerned in the wood industries, and for their patrons, when the time shall come that it will be necessary to bring lumber and timber from these distant points.

As already remarked at the beginning of this paper, the use and waste of forest products far exceed the growth, and this disparity is every

year increasing as new demands arise for local use or new markets are opened for exportation. It is therefore among the plainest of certainties that our people must in the near future feel the inconvenience of greatly enhanced prices and among the strongest of probabilities that they will then begin to realize the profits from the growing of timbers. To do this to advantage they will need a certain kind of education that our schools do not now provide, for, although there may doubtless be hereafter a great deal of empirical planting, just as there is of farming, without the planter being able to assign a better reason for his methods than that his neighbors do likewise or that his father did so before him, it is now too late to deny, and it is quite needless to prove, that in tree planting as in every other pursuit in business the man of best education attains the greatest success.

It is within the knowledge of every one that our native forests present great diversity in their timber growth. In one locality we find the maple or the oak; in another, the ash or the elm; in another, the hemlock, or the pine, the chestnut, the cypress, or the walnut, as the prevailing kind; and this difference will always be found due to the favoring conditions of soil or of subsoil, of subjacent rock foundation, of humidity or dryness, or of elevation or aspect that suit the wants of these particular kinds. It may often happen that a species from another region or country may prove even more thrifty and profitable than any that are found growing in a native state, and in planting a prairie region where no timber has grown, at least within the period of our memories or traditions, it is of the very highest importance that these capabilities and preferences be well understood beforehand. If we commit an error in the sowing of a farm crop the failure will not extend beyond the first year, and the farmer deserves no sympathy who will repeat his error in the next. But timber trees are at best of but slow growth, and a lifetime might be lost in waiting to see the unprofitable growth of a tree ill adapted to its place, while a more intelligent choice and management would have brought a revenue to the planter. But what is our need from an educational standpoint and what is demanded of our schools in the interest of the forests? Will any of the foreign systems apply to our wants, or, if not, what modifications do we need to meet the requirements in prospect? Let us see how the circumstances differ.

In every foreign country where systems of forest management exist there are large areas of woodlands belonging to the government and to communes or other local municipalities and to public institutions.

The inhabitants of communes often enjoy rights of common usage, either in the way of fuel and building material, or in the gathering of seeds and fruits or of fresh leaves for feeding or fallen leaves for bedding their stock, or rights of pasturage, or some other privilege which has been secured to them by statute or confirmed by customs stronger than law. The management of common rights presents some of the most difficult problems with which the European forester has to deal. It

forms a branch of special instruction in the schools of forestry, and it often becomes so serious a bar to improvement that these privileges must be bought off, commuted, or exchanged for some equivalent benefit before a reform can be secured.

In many European forests certain kinds of game are reserved for the enjoyment of a privileged class, and their care and protection come within the forester's duties and form a part of his education, even where their presence works an injury to the growth of the timber he is bound to cherish and proves a scourge to the neighboring farmer, who is forbidden under heavy penalties to injure the animals that may be destroying his crops and, it may be, further forbidden to fence his fields if it should hinder pursuit by those who may join in the chase.

In some instances the government in former times reserved the first choice of timber for its navy, and might even take what it needed where most convenient, not sparing the lawn tree or the avenue planted by ancestors, if the caprice or the convenience of officials so decided, and there are still some rights of preference and some restraints upon private usage that may prove burdensome to the landholder. Finally, there are tenures and limitations upon the title to lands that may embarrass or wholly prevent an industry that brings only a remote benefit; as no tenant would ever plant a tree that could only be cut after his lease had expired or make any other improvement that he could never enjoy. Now, our circumstances as regards the ownership and tenure of the land are as follows:

The National Government has indeed some valuable tracts of timber land which it should lose no time in putting under a management tending to secure the greatest benefit to the present and the future; but our States own no land (except as granted for special objects) and it has hitherto been the policy of both the general and the State governments to transfer their lands to the actual settlers as soon as possible. In fact, all the land in the older States and much of it in the newer States and Territories has already become private property under titles that are absolute and unconditional. Fortunately we have no rights of common usage in our woodlands, no rights of preference in their timber, no privileged classes having rights of chase upon the lands of vassals, no game but such as the owner of the land may choose to own or allow, and no hunting but such as he may permit or forbid. Our schools will therefore never have occasion to teach a forest code or the jurisprudence that may arise under it. They need pay no attention to game except as the state may enact laws for its protection in the interest of agriculture or for other common benefit; and until a time shall come when our forests reserved for the supply of the timber market are owned by great corporations, having the stability and capital that give assurance of permanence, there will be no great opportunities for applying plans of *aménagement*¹ that shall govern the future working of a young forest

¹ Technically used in France for the legally regulated cutting of forests.

upon a private estate, until it comes to full maturity, for the use of generations unborn.

The graduate of a European school of forestry would scarcely find use for the education he had acquired beyond his training in the physical and natural sciences and in mathematics were he placed in the most responsible trust that our forest owners could offer; but in these branches the general principles are alike the world over, however codes may vary, and his success with us, as elsewhere, would be in direct proportion as he had learned to apply these principles to the conditions he might find and to appreciate the modifications in management that new circumstances might require.

The education that our country requires in the interest of forestry (and which, from present prospects, our schools will ere long be called upon to supply) will not, in our opinion, be so much of a thorough and exhaustive kind for the special benefit of a few as of a more general and elementary character that shall come within the reach of many. We need first and most of all, not simply in our schools, but throughout our whole country and especially among the rural and agricultural classes, the diffusion of the simplest principles of political economy that teach the importance of our woodlands to the general welfare and the need of the material that they furnish for the supply of our indispensable wants in life—a due appreciation of the incidental benefits which our woodlands secure to agriculture and to the sanitary and industrial interests that depend upon an adequate and duly equalized water supply.

These utilitarian ideas are not in the least degree inconsistent with a due appreciation of the beauties of woodland scenery and the full enjoyment of all that is lovely in rural landscapes and forest shade. The forester looks with pride and pleasure upon the tree or the grove that his hand has planted, and as he watches its growth from year to year he cannot fail to acquire an attachment for the scenes and solitudes of a woodland life.

To realize how much of the imagery of the poets and of beauty in landscape painting depends upon sylvan scenery and rural associations, we need but imagine how blank and dreary would poetry and painting be without them. Whatever tends to cultivate and extend this appreciation of the beautiful in nature is so far in direct advancement of forestry, and it may be proper to here consider some of the means by which this may be done. We know in every phase of life, in every pursuit of business or of pleasure, in every usage of society, how much mankind are influenced by the example of others. In some things we call this tendency to imitation a fashion and in others a custom, and in neither case can any better reason be assigned for the imitation than that it is the practice of others.

We have an interesting example of a widespread and lasting custom of tree planting in English history. There is at present no country in

the world where there is such an abundance of trees planted for ornament as in England. The well kept parks and landscape views presented upon the estates of the nobility and the landed gentry are the pride of their owners and the admiration of travellers. This taste for rural ornament is largely due to the efforts of Sir John Evelyn more than two hundred years ago. This writer was an especial favorite at the court of Charles the Second and, as remarked by a subsequent editor of his writings, "from an early entrance into public life to an extreme old age he considered himself as living only for the benefit of mankind." His best known work, entitled "*Sylva: A Discourse of Forest Trees*," acquired great popularity, as shown from the large and frequent editions that appeared during the author's life, and the permanence of this interest is further proved by the many later editions which have since been issued, almost down to the present time. Under the impulse and advice of Evelyn, the king and the nobility of that day began extensive improvements in planting their estates, and the example thus set became a widespread fashion among landed proprietors throughout the kingdom, which has continued down to the present time. We have evidence of this immediate and effectual impression made by the writings of Evelyn in a dedication to Charles II prefixed to one of the later editions that appeared during the author's life, in which he says: "I need not acquaint Your Majesty how many millions of timber trees, besides infinite others, have been planted and propagated throughout your vast domains at the instigation and by the sole direction of this work, because Your Majesty has been pleased to own it publicly for my encouragement;"¹ and no more striking or beautiful tribute could be paid by a man of genius to one who had worked so lovingly for the good of his fellow man than was that by the elder Disraeli in his *Curiosities of Literature*, in which he says: "And surely while Britain retains her awful situation among the nations of Europe, the *Sylva* of Evelyn will endure with her triumphant oaks. It was a retired philosopher who aroused the genius of a nation, and who, casting a prophetic eye towards the age in which we live, contributed to secure our sovereignty of the seas. The present navy of Great Britain has been constructed with the oaks which the genius of Evelyn planted." There is something, indeed, in a noble park that betokens stability and opulence in the owner, and there can be nothing more flattering to family pride than to point out a grand avenue of majestic trees that an ancestor planted. We need not travel far nor seek long for illustrations of this feeling in our own country, for a man can scarcely plant a tree upon his homestead lawn without ever afterwards looking upon its growth in size and beauty with satisfaction. If an accident happens to it he willingly spends much more than its simple value, if within the possibility of remedy; or if maliciously injured he will resent it as if it were a personal injury.

¹ Disraeli's *Curiosities of Literature*, vol. II, p. 326 (New York, 1871).

It has sometimes been a custom to plant a tree to commemorate an event. It may record the nativity of a child in a family, or the visit of an illustrious guest, or some memorable event in history. Thus in the ancient Dutch city of Albany there are now great trees in the streets coeval with a present or a former inmate of the dwelling opposite and an aged elm that was planted to commemorate the arrival of General Burgoyne as a prisoner of war soon after the surrender of Saratoga. Throughout the length and breadth of our country we have trees planted during the Centennial year; and whenever a historical event is connected with a tree the tree becomes ever after an object of interest while it lives. The Royal Oaks that sheltered Charles the Second, the Charter Oak of Hartford, and the Treaty Tree in Philadelphia were monuments while they lasted and were cherished as relics when they fell: Of similar but more local interest are the class trees on our college grounds and the trees planted on special occasions to commemorate interesting local events.

The promotion of a taste for rural adornment and ornamental planting being an object worthy of our earnest effort, as well from the æsthetic culture and refined enjoyment they secure as from the favorable influence that they exert upon plantations for utility, let us inquire as to the means by which this object of manifold advantages may be best secured.

In our cities and large towns public parks are now very generally recognized as important agencies for the hygienic welfare and personal enjoyment of their inhabitants. The responsibility as to their management is naturally vested in the municipal government, and should be in charge of a special commission, upon whose intelligence and efficiency their success depends. The influence of public parks upon the general welfare should be more fully appreciated, and there are many cities of large and dense population where these improvements have not yet begun. In others, where a beginning has already been made, the need and opportunity of a barren waste, a river bank, a shore, an island, or a point of land within or adjacent to the city limits has not yet been noticed, where a moderate expense might secure a little paradise of beauty and an inviting place of rest. The grounds around public institutions, in rural cemeteries and the like, might often be made more agreeable to the eye if the opportunity for improvement were pointed out and sufficient means allowed. The interest in city parks might often be greatly increased by greater variety of species and by correct labels of their names.

In villages we find greater opportunities for individual action and abundant advantages from a concert of effort which it is the special province of village improvement societies to secure. I am well aware that others present have given much attention to this class of associations, in which the efforts are sometimes not limited to the material welfare of their localities but extend to intellectual improvement and refinement

in social life. They deserve our highest commendation and support, and the educational bearings of these efforts are too obvious to require special notice.

The example of one village becomes the pattern of another; and should emulation arise between neighboring villages, we would not have it checked until each has outdone the other in rural adornment.

From large villages the example tends to imitation in the smaller ones, where, although the means may be less, the opportunities of space may be relatively greater, and from these to private homesteads throughout the land. Although the intellectual and social refinement arising from these customs deserves first mention among their advantages, we may notice that they tend to enhance the value of the property that they adorn. They render a village more desirable for residence and invite the notice of those who, having earned a competence in the cities, are seeking to retire to the quiet shades of rural life, that still present attractions for intellectual enjoyment and the amenities of a refined neighborhood. The farmer who would wish to enhance the market value of his land could not invest more profitably than in trees; and it will be fortunate if he early learns the useful fact that there are corners and waste places in abundance, now unproductive and unfit for other cultivation, that present the most favorable conditions for the growth of forest trees.

The man who has cleared a farm out of the forest seldom or never plants a tree. He has come, from long custom, to look upon trees as an incumbrance to be removed; and whenever his home presents a noticeable amount of sylvan shade it is more likely to be the work of a younger generation, who have no sympathy with his aversion and a better idea of the comforts of home life. Americans have been reproached for having but slight attachment to the homes of their childhood; and this willingness to sell to a stranger the land that a parent has cleared and cultivated, and on which their own early years have been spent, has been ascribed to a certain instability of character and an uneasy desire for change.

There is doubtless a strong affinity between a love of home and of country, and it is true that an attachment to a homestead because of ancestral possession and family associations would greatly tend to increase our national prosperity and happiness. It would lead to substantial investments for permanence and future enjoyment that the transient and speculative owner would never make, and it would tend to the more solid foundation of our public institutions generally. The man who settles temporarily for business and expects to depart when he becomes rich, spends no money upon public libraries and cares nothing for the charitable and educational establishments of the place, provided they do not burden him while he remains. His influence will generally be adverse if these objects require expenses that bring no return during his stay, and he will prefer temporary expedients to per-

manent investments if they but serve to bridge over the time of his sojourn. The solid and substantial foundation of our institutions is laid by those having a permanent interest in the prosperity of the places where they are located. It is this class alone that erects monuments and that leaves evidences that its members have lived for the welfare of those who are to come after them.

It is a point worthy of inquiry as to whether much of this indifference to the home of childhood and to the possessions of ancestors with which Americans have been charged is not due to their bleak and cheerless surroundings.

We cannot doubt that the influence of a pleasant rural homestead and the choice memories of refined associations in early youth are as capable of making as strong an impression upon our native population as in any country whatever, and although in the absence of laws of entail and under the impulse of adventure or motives of interest or the force of circumstances a change of ownership may often happen and the choice and cherished homestead become the property of a stranger, still the chances become less as the attractions are greater, and a motive worthy of earnest and honorable effort is presented in favor of maintenance in the family line.

From this form of education by example, tending to promote a taste for rural planting and the enjoyment of rural scenery, which cannot fail to promote a more general plantation for utility, let us next consider the direct educational appliances that should be supplied in our institutions of learning.

Commencing with our colleges, we almost uniformly find, except in large cities, that they have sufficient land around them to justify a certain amount of planting and often facilities for a first class arboretum. Instead of the plantation of one or a few species, it would be better to group together, in their natural relations, as great a variety of species as the soil and climate would favor—thus affording a ready illustration for comparative study and the means for becoming practically familiar with the characteristic features of each. Of course each species should be correctly labelled with the scientific as well as the popular name and it would be still better if the synonymes and the names in the more important foreign languages could be known. This object lesson would still be but imperfectly learned, unless the student were required to know the leading facts concerning the native region, geographical range, uses, and best methods of propagation of each species under observation; and he should be able to point out the characteristic features of each. Our agricultural colleges should be required and the best endowed of our colleges should be induced to establish nurseries for the propagation of trees and for experimental study, and cabinets of wood specimens and wood products, with illustrations of the foliage, the fruit, &c., should be provided.

In teaching the sciences of geology, chemistry, botany, zoölogy in its

various branches, and climatology, their relations to forestry should be clearly defined and their application shown. We have already noticed the prominence that is given in European schools of forestry to practical exercises and excursions under the guidance of teachers, with the view of rendering the student thoroughly familiar with the subject of his studies and qualified to judge and act intelligently when thrown upon his own resources in after life. There can be nothing more rational or effectual in education than this, and in nothing in the whole plan of our system of education has there hitherto been so much neglect. No person should deem himself qualified to teach a science that he cannot illustrate in its applications as they appear in nature or are employed in the industries; and we would most earnestly commend this point to your thoughtful consideration as a deficiency in our system of education that should be supplied. We are aware that chemistry, engineering, and to some extent the natural sciences are thus practically taught, but we would have the method extended to far greater degree than has yet been attempted. Finally, our college classes, before graduation, should enjoy the privilege of some instruction, if only in a course of a dozen lectures, in which the general subject of forestry should be presented. These lectures might include a brief historical outline of the subject; a notice of the codes of administration in various foreign countries; their methods of management in the ordinary course of forest culture and under exceptionally difficult conditions, as for example upon mountains eroded by torrents or upon drifting sands; the various modes of extraction and transportation; forest police; the prevention and control of fires; the means employed for limiting insect ravages and other injuries; the usages of commerce; the economies that apply, and the question of supply and demand.

In this outline of what might be taught in our colleges, excepting the labelled collections of living trees and cabinets and excepting the special lectures upon forestry, I have suggested nothing but what our existing organizations ought to be able to supply, and this without materially adding to the duties already assigned. The application might require some preparation on the part of instructors to familiarize themselves with these duties and some modification in our text books, or, what would be better, a manual specially adapted to this subject that does not as yet exist in our language, but which could be readily supplied.

Descending from our colleges to the academies, a modified form of the course above sketched might be conveniently applied. The labelled plantations of living trees and the cabinets would still find an appropriate place, and in the studies above enumerated, to the extent that they are taught, the applications to forestry might, with equal advantage, be made practically familiar from fresh specimens in the classroom and by occasional excursions in the groves. There is no more profitable mode for cultivating a habit of observation than by requiring the student

to discover and describe the differences that exist between objects that have a general resemblance but which are still unlike. For example, if branches from two species of the maple or the birch, the oak or the walnut, were assigned as a study, the mental effort involved in the exercise would lead the close observer to notice differences in the leaves, the buds, the bark, and the wood that he had never recognized before, however familiar these objects may have been, and the habit of close observation thus called into exercise may prove of infinite service through after life. The formation of private collections in forest botany and forest products might often be encouraged among the students of our academies to great advantage, requiring them at the same time to learn by their own inquiry and research, from whatever source of information they can devise, as much as may be concerning their properties, their value, and their uses. A relish for rural adornment can be in no way so effectually inspired as by example, and if some leisure hours are spent in planting and cultivating trees the knowledge may prove of great service in after life.

From the academies we pass to our public schools, where the extent of instruction must be modified to suit the more elementary course of studies that are taught. In the great cities the opportunities are few, and perhaps little can be done beyond familiarizing the scholar with the subject by cabinet specimens, engraved illustrations, and such instruction as may be incidentally given in the text books used; but in the rural districts the earnest and faithful teacher has abundant opportunities for inspiring a love of nature and of natural scenery, and there should be no school-house without its little plantation around it, which the inmates are taught to cherish and protect. The pupils may be encouraged to undertake the cultivation of ornamental shrubs rather as a privilege than as an obligation, and many impressions alike pleasant and profitable may be planted in the scholar's mind, that, like seed in good soil, may perchance germinate and bear fruit in after years.

As an illustration of the means by which the common schools may be made the agency of imparting correct ideas upon an important subject in rural economy, I will mention the measures adopted in recent years by the French government for the protection of insectivorous birds through the agency of their schools. Wishing to learn how this was done, I applied, some time since, to M. Waddington, then minister of education, who sent with his reply a series of circulars and documents having reference to the subject before us. In his instructions to the prefects of departments, after noticing the injuries caused to agriculture by noxious insects, which have increased to a truly alarming extent in recent years, he says:

The ministers of agriculture and of the interior have called my attention to these sad conditions, of which the principal cause is the disappearance or at least great reduction in the number of insectivorous birds. These birds are the natural guardians of our harvests and the most precious auxiliaries of the farmer: yet they are everywhere

treated as enemies. The cultivator, forgetting the constant services that they render him, sees only the little faults they commit; children pursue them to destruction; they are caught in nets; their nests are broken up; and these useful friends which strangers come to buy for acclimation in foreign lands are gradually disappearing from our fields. Various circulars already have been addressed to the inspectors of academies and numerous notes inserted in the official bulletins of the ministry with a view to stopping this destruction. Notwithstanding this, I deem it my duty to respond to the wishes of my colleagues by calling anew upon the teachers for their concurrence.

I therefore desire you, M. le Préfet, to address instructions to all the teachers of your department, that they take pains to teach their pupils how to distinguish the insects that are injurious from those that are useful to agriculture; and that they encourage them to destroy the former and protect the latter. It is also of first importance that children should be made to understand that it is to the interest of their families that they destroy no birds' nests, and that in doing so they show themselves both reckless and ungrateful. They should also know the penalties of law that they incur by so doing. [The statutes and ordinances forbidding this practice are here cited.]

Teachers should also remind parents of the responsibilities incurred by allowing their children to destroy birds' nests, and that they are themselves liable to a fine for the acts of their minor children in allowing them to commit this act. I will add that in some communes that could be named teachers have conceived the happy thought of organizing among their pupils little societies for the protection of useful animals. These have done good service, and it would give me great pleasure to see their number increased. I attach, sir, the most serious importance to the execution of this circular, the receipt of which you are requested to acknowledge.

Among the other circulars were lists of birds and animals most useful to the farm and garden; statements of prosecutions under the game laws that had been carried to full punishment; examples of the benefits from the abundance of birds and of injuries from their scarcity, and pathetic stories to be read by the children that might well tend to enlist their sympathies in behalf of these feathered allies of the field. The following may be taken as an example of the class of stories thus brought under their notice:

A sportsman was returning from an unsuccessful tramp, when a little bird accidentally crossed his path. With scarce a motive, for it was not a game bird, he discharged his gun, wounding the little creature, which fluttered slowly away. Curiosity led him to follow the trail till it led to the nest where the mother bird was found in a dying condition, and trying to protect its young that were covered with its blood. The thoughtless cruelty of his act so impressed the hunter that he resolved from that moment that he would never kill another bird.

It may be thought that I am wandering from my subject in passing from trees to birds. But really, can we speak of rural scenery and sylvan life without associating them together? In fact, this very subject of the protection of insectivorous birds for the benefit of agriculture presents a strong argument in favor of planting groves and belts of timber between our fields to afford a nesting place and a shelter for them; and the measure we have seen introduced in France from motives of public economy deserves attention in our own rural districts as much as in any other part of the world.

In speaking of what might be done in favor of rural adornment, and incidentally of planting, through the instruction of our schools, it will

at once occur to us that our teachers should themselves be taught ; and hence we come to another phase of education that concerns our normal schools. We cannot here expect to do more than impart some general ideas on the subject ; but there should at least be provided half a dozen lectures before each graduating class, and something, if no more than a single lecture, should be given at our annual teachers' institutes upon this most important subject.

In conclusion, we would remark that in this question of forest supplies and the incidental benefits of woodlands, now beginning to excite attention, we start with the disadvantage of having to encounter the prejudices of those who have been accustomed to look upon our woodlands, if not too abundant, at least as infinite in amount and in duration. We must undeceive the overconfident, convince the doubtful, and awaken an interest in the indifferent.

If we may borrow from the experience of our clergy, who generally find old sinners hard subjects for conversion, our greatest hope depends upon the impressions that may be made upon the young. This class we find in our schools, and we have the best of opportunities for inspiring in them a love of the beautiful, as well as of the useful, in the life that is opening before them. Although this association of the pleasant and the profitable should be a leading object in every phase of education, we may give prominence to the former without injury to the latter, and feel assured that, when a fondness for any study or pursuit is once established under pleasant and attractive associations, the uses will be discovered, although they may not have been directly pointed out.

If we can induce the young man to plant a grove of trees for the charming contrast of light and shade that it will afford when grown, he will in due time discover, without being told by us, the market value of the timber in the trees that cast these shadows. The planter of a woodland of oaks and pines may enjoy their growth through a lifetime, and his children after him, until they become grand and majestic, yet this will not prevent us from figuring on their value for staves and shingles when they come to maturity and should give place to a new growth. 'Tis true the love of gain is low and sordid as compared with the more refined and honorable motives of life, and we should appeal to this only when the one you would influence will listen to no other. If by means of the latter we can secure the enjoyment that they afford, and at the same time assure the advantages of the former, we shall have reached the highest point to which our education can attain.

Mr. NORTHROP, of Connecticut, spoke of the recent formation of the Association of Middlesex Falls, in Eastern Massachusetts, to lay out one of the finest parks in America. One object of this association would be to organize a school of forestry. He concluded by saying that until schools of forestry were established the principal substitute should be the teaching in the public schools, and that the minds of the scholars

should be imbued with a love of rural improvement, and that the planting of trees should be encouraged.

Mr. DEWOLF, of Ohio, made some remarks upon the question of the morning, How can the status of the teacher be changed? We are taught, he said, to look to the ministerial or clerical professions for certain classes of work, and these professions are expected to lead us. It seemed to him that those in his profession needed to understand that they had relations to society, and that just in proportion as they felt this they would have the same power that other professions possess.

Mr. NORTHROP stated that there were in Connecticut sixty associations for rural improvement, and that he had aided in forming as many more in other States, and in every case he thought the result had shown the wisdom of the organization.

Mr. DEWOLF followed with some remarks on tree planting.

On motion of General Eaton, the department then adjourned to meet in the same hall at 10.30 the next morning, instead of 9.30, that the members might have an opportunity to visit the Normal College.

A complimentary dinner was tendered the department this (Wednesday) evening at Delmonico's.

Hon. William Dowd presided, and short addresses were made by General Eaton, General Webb, Neil Gilmour, J. P. Wickersham, Aaron Gove, M. A. Newell, D. F. DeWolf, Dexter A. Hawkins, John D. Philbrick, Mr. Page, J. H. Smart, Hosea Perkins, and Professor Scott.

FOURTH SESSION—THURSDAY MORNING.

NEW YORK, *February 10, 1881.*

The department having met, the members listened to some remarks by Mrs. MARY H. HUNT, of the Woman's National Christian Temperance Union, who spoke of the evils of intemperance and the importance of training the children in the schools to habits of temperance, from the standpoint of physiology and chemistry.

General EATON then read the following paper:

MUSEUMS ILLUSTRATIVE OF EDUCATION.

This paper is entitled "Museums illustrative of education," by which expression I mean to indicate collections of articles, apparatus, and objects which may illustrate or symbolize the means and methods and processes of human instruction.

The establishment of such collections involves the question of their expense as well as the question of their relation to the principles of pedagogics. The first question naturally will be decided by the value of these museums as ascertained in the consideration of the second.

All theories of education agree in emphasizing the importance of the senses in the cultivation of the intellect. The conditions of infantile life are mainly physical, and show few signs of the mental power of the

adult. The first years of the child are a waking up to its own wants and to the influences which bear in upon it through the avenues of the senses. The mother still stands to it as its next self, supplying its wants, protection, nourishment, and affection, and directly shaping those conditions of the environment which affect or direct development. The mother is first to repress the cry or to awake the smile, yet all parental agencies speedily find their limit, and others must be admitted, but the principles of growth remain the same. The scope of material conditions increases; society, other than parental or family, appears, and the teacher is brought into requisition. His success will be determined by his skill in commanding the attention of his pupil. As a rule, he will find social economies placing him and his pupil or pupils during the hours of instruction apart from the influences of the family and society and the means and opportunities of observation. Aside from himself and his own attainments, the chief instrumentality at his command is the book.

The schools as thus constituted to-day, of teachers, pupils, and books, with all their conditions, have not come by chance, but are a growth, the marks of which can be distinctly seen if we attempt a comparison of them with the schools of a quarter century, a century, or two centuries ago. Take the subject of text books. The homely little horn-book of the old days has expanded and multiplied itself into numerous and various spellers, readers, arithmetics, geographies, and other text books.

The legs of the little pupils do not so often dangle from their seats. The lighting, heating, ventilating of the room, indeed the conditions of the school generally, are more healthful. Something to aid illustration, such as blackboards or charts, adorns the walls. The dunce block is absent, the ferule less common, and the relation between the teacher and pupil is less that of distance or of physical force on one hand and fear and unnatural restraint on the other, but it has become a nearer approach to the relation between the worthy parent and the worthy child.

And yet these advancements of the school on previous decades and centuries are not quite satisfactory. The teacher with genuine power to instruct and train will find a thousand ways to introduce devices, imagery, motives, by which the pupil's attention will be increased, his conceptions made more clear, and the result more nearly satisfactory to the philosophical view. To the close observer these improvements suggest a purpose to discover and realize, if possible, the relation in which the child is first found to parent and surroundings.

In the history of races and of human culture antedating the use of letters, we have the growth of oral traditions. But here and there a man arises with the histrionic power. He can represent and imitate others, and he meets at once a response from those who hear or witness his exhibition. Another is so constituted as to have power on the side of conscience in moralizing, and finds a corresponding response from the

consciences of those around him. Still another has the power of rhythm, and weaves into poetic language and imagery the experiences, the heroic acts of others, or the striking traditions or the solemn precepts of the moralist, and finds perhaps a chorus of voices responding to his measure.

At another point, historically, we find that a great mind, through its various avenues of information and reflection, has advanced its accumulations far beyond its contemporaries, and the possessor of this mind becomes a teacher. If it be Socrates, his pupil is any one who will converse with him; his place of instruction, the wayside, shop, or garden; and the illustrations and the imagery used are drawn from familiar objects and experiences. If it be Plato, he walks with his pupils in the groves of Academe and discourses upon the profoundest subjects of philosophy. If Aristotle, he adds to philosophical discourse, and leads to heroism by reading to Alexander the pages of Homer. If it be Jesus, the Saviour of men, He goes about doing good; His disciples follow Him; He teaches the greatest doctrines of life, drawing His illustrations and imagery from the objects about them and the experiences of their common life.

But with the introduction of letters the increasing record of facts, the advance of knowledge, and the development of science made it both possible and necessary for the learner and the teacher that selections should be made of the subjects to be taught and that the mass of the facts brought into view should be reduced and rendered available for the period of school days.

We need not stop to inquire how religious motives in all great movements have proved supreme.

It is sufficient to note that in the middle ages, when the education which we now have began to take form, the methods of instruction, controlled by the supreme ecclesiastical power, were shaped to the acquisition of knowledge from the book only, and were necessarily of the most abstract character.

We are all aware how little was then known in all departments of natural history or natural sciences. We cannot pause to consider the agitation produced by the researches which have advanced these departments of knowledge. The theory that ecclesiastical ideas then held and formulated were infallible and admitted of no change encountered antagonisms on the part of all who sought to improve the methods of instruction or to enter new fields of learning.

The absurdities and barbarisms of the schoolmasters of three or five centuries ago we pass over. It is our misfortune as educators that we are still largely under the dominion of these abstract methods, though the greatest evils have been encountered not in the application of these abstract methods to adult minds or to minds after they have reached the period of reflection and reason in which the processes of abstraction become natural; the chief misfortune lies in their application to the

period of youth, when the senses perform so large a part in all mental operations.

We are told, as you know, that the brain is often not matured till the child is ten years old. The teacher must take him as he is. He must expect him while a child to act as a child, to learn as a child, to speak as a child.

These difficulties are specially intensified in all efforts to instruct those who are unfortunate either in the loss of sight or hearing or deficient in mental powers—unfortunates whom no one attempted to teach in ancient times and who have only within a very recent period, under the advanced ideas of christian philanthropy and the progress of modern science, been touched by the semi-creative power of education in schools. These teachers have found it possible to succeed only by meeting the issues which I here bring to the attention of educators in general. They have first studied the child and marked the signs of incipient development. They have analyzed the subjects of instruction and the methods in general use, and found how these could be modified to meet and answer the conditions of their pupils. Their triumph is a marvel, and we hold that the teacher of the normal child, normally developed, may improve his methods by a similar process; and in affirming this we do not admit that the book is useless, that our schools are failures, that our teachers are all ignoramuses, that we are all on the wrong track now.

While we do not deny that we may learn from every civilized nation, we believe and affirm that we have teachers, that we have methods, that we have school-houses and appliances and institutions of all grades (except the very highest), that we have systems of education nowhere excelled, and that on the whole our education, as imperfect as it now is, is producing a society better fitted to live a better life on a larger scale and with better results than are found anywhere in the history of the past or under any other form of education.

We are among those who believe in American institutions and that they embody more good for a great people than any other. We are not so blind as to think we have all that is best. We would learn from all others and draw to ourselves by suggestion and appropriation every benefit they can confer. A moment's consideration will bring to mind the line in which to apply to our education the correctives which we are considering. Prof. Joseph Henry was accustomed to express his idea that our education needed a corrective by saying that we should, in the order of instruction, consult the order of the child's development. We must study the child as he is, physically, mentally, morally, in his material and spiritual conditions and surroundings, and seek to comprehend his destiny. As we have seen, those who deal successfully with the development of defective youth come into the most intimate relations to their actual conditions, and by their nice adaptation of methods bridge over blindness or deafness or imbecility, and reach, nourish,

train, and secure growth. Dr. Howe found there was one and only one available medium to the mental powers of Laura Bridgman, the sense of touch or feeling, and we have the marvellous result: Laura is introduced to the world of knowledge common to others. Applying the same principle in the education of those who are sound, who are without any special defect, we should devise methods adapted to the best development of the entire capacity of the child. In not doing this we commit our greatest blunders. In correcting these blunders we must guard against the tendency to fall into greater evils. The so-called object teaching has been offered as a panacea, yet we often visit a school where these object methods are employed and find the development of the child quite as partial and defective as under the old methods. The evidence is positive against any exclusive method. Professor Bain observes:

Young and old alike on seeing a good picture are apt to rest there. Such is the tendency of all representations, sketches, maps, and the rest. The most valuable helps to geography are models, and if these could be multiplied in schools the conceptions of the general forms of countries would be vastly enhanced; while the subsequent lessons of juxtaposition and relative situation would find a groundwork of remarkable cohesiveness.

What we want in our instruction and training, we repeat, is to use in due proportion all the child's capacities for his harmonious development; not to use solely his perception, or reflection, or expression, or memory, or imagination, or reason. At best there will be much in every child which the teacher cannot comprehend, and with forty or fifty pupils to the teacher there is need that all helps should be in his hand. In these perfected schemes the book will ever hold the preëminent place. Indeed, the child who acquires a taste for reading the book and skill in handling it has the clew to all learning, whether he have a teacher or school or not.

But while the wisest endeavors are used to make the book most effective, it can impart only second hand information. It is equally as important that the pupil should be taught how to acquire also knowledge at first hand: to bring his own eyes, his own ears, experiences, observations, to the service of his mind. And yet his memory must be trained alike in its recollective and retentive capacity; he must know how to reason, too, on what he experiences or observes or reads. His imagination must be stimulated and enriched by the power and beauty of fable, parable, poem, song.

Both Socrates and the Great Teacher of Men employed with the greatest skill the power of imagery to reach the heart and direct the conduct through the imagination.

Instead of doing this whole work for the child, which is here urged, we find that one teacher is strong in operating on the sensibilities, another in forcing obedience upon the will, another in arousing conscience, another in quickening the reasoning faculties, another in cultivating the memory, another in inciting reflection, another in developing

expression, another the taste, another the perceptions dependent upon the senses. What we want and are urging is that an education shall comprehend all these.

A grand defect lies not with the purpose and desire of the teacher, but in the lack of possibilities. The teacher in Siam cannot travel with his royal pupil to Siberia to convey to him a correct idea of snow and ice. He must do it through words and imagery. If we cannot have the thing, we must have the most pertinent illustration or image of it. Since we cannot go everywhere for these observations, we must gather and concentrate their illustrations. The past cannot reenact itself for the student of history. As the book aids him in the study of centuries gone, so the museum must bring together specimens of the armor, implements, furniture, architecture, and arts of those historic ages beyond his observation, and arrange and group them in a manner adapted to his information. "Certain it is," as Bacon observes, "that into the deep, fruitful, and operative study of many sciences, especially natural philosophy and physic, books be not the only instrumentals; wherein also the beneficence of men hath not been altogether wanting; for we see spheres, globes, astrolabes, maps, and the like have been provided as appurtenances to astronomy and cosmography as well as books; we see likewise that some places instituted for physic have annexed the commodity of gardens for simples of all sorts, and do likewise command the use of dead bodies for anatomies."

The idea is as old as the Temple of the Muses. We have all read of the museum at Alexandria, established by Ptolemy 284 years before Christ, and of that one founded by the Roman Emperor Claudius. Then we get glimpses of those at Pergamos, Antioch, and Byzantium. In modern civilization the idea has received great enlargement. Years ago Prof. Joseph Henry remarked:

There is scarcely any subject connected with science and education to which more attention is given at the present day than that of collections of objects of nature and art, known under the general denomination of museums. This arises from their growing importance as aids to scientific investigation and instruction. As they are intended to subserve different ends, they are of different characters. There are, on the one hand, large central museums, supported by government appropriations, and on the other, local museums, which are established and sustained by societies and voluntary individual aid.

One of the most interesting forms which museums have assumed in our day is that wherein the collection of articles for the promotion of public information is combined with that very ancient commercial device, the fair. Many cities and countries have organized such exhibitions, notably the World's Fairs of 1851 and 1862 in London, the Universal Expositions of 1867 and 1878 in Paris, the Weltausstellung of 1873 in Vienna, and our Centennial of 1876 at Philadelphia. Each exhibition of this kind has stimulated and inspired the people who beheld it and has left behind it a permanent museum of great value for the future instruction of the public.

Now, while the student of pedagogical theory and practice finds much in these exhibitions and museums which teaches him, it is only at exceptional times and in special places that he can have frequent access to material illustrating the progress, methods, and conditions of his art. Impressed with the fact and bearing of this deficiency, educators have from time to time endeavored to organize collections illustrative of the subjects and methods of instruction.

Comenius, among other valuable works, prepared his *orbis pictus*. He would have the word learned in connection with the thing; thus, in the study of science the scholar must, as far as possible, have the objects themselves before him, and, when this cannot be done, correct drawings or pictures of them. He would have the true order of instruction learned from nature, and emphasizes the employment of the senses.

Later there came Pestalozzi, reviving the same propositions in a modified form: first, he would teach the thing and the word together; second, he considers that the only effective agents through which to acquire the knowledge of things are the senses, chief of which is that of sight; third, the child should study the objects immediately around him; fourth, from this starting point the sphere of knowledge must be extended by the gradual enlargement of observations.

Then came Fröbel, seeking to perfect what these eminent men had already attempted in the application of nature's method in the education of the child.

It should be recollected that during the progress of these changes in theory and practice the subjects of instruction were multiplied. Botany, mineralogy, zoölogy, chemistry, physics, and astronomy made great advances. Each engaged the attention of master minds. Experiments and illustrations in the presence of the pupil increased, and by degrees he was encouraged to attempt manipulation for himself. Under the old classical curriculum the library was the chief aid required in instruction, but now cabinets of minerals and of botany were introduced, and in time collections of specimens illustrative of all the physical sciences.

Dr. De Cuyper, a distinguished professor at the University of Liège, says, in his report on polytechnic and higher industrial schools in Germany, that the success of these schools is to be ascribed to the educational auxiliaries which the student finds in the varied and complete collections connected with the schools. These collections educate both the professor and the student. The famous Royal Industrial School at Berlin (Dr. Reuleaux's) has at present 16 distinct collections; the Mining Academy at Freiberg has 11; the Polytechnic School at Munich, 27; the Polytechnic School at Carlsruhe, 12; the Polytechnic School at Darmstadt, 15; and the Polytechnic School at Brunswick, 14.

In 1877 the Saxon ministry of public instruction thought it of sufficient importance to issue a special circular calling attention to the excellent papier mâché and other models prepared for the use of schools by the Museum Salvator at Dresden.

The increased use of illustrations in science and physics affected the methods of teaching the classics and mathematics. The professor of Greek and Latin now adorns his room with maps, plane and raised, or the localities mentioned in the text, with typical representations of architecture, and with the busts of the celebrated persons mentioned. The change is no less in the methods of teaching mathematics. Says Herschel :

Number we cannot help regarding as an abstraction, and consequently its general properties or its axioms to be of necessity inductively concluded from the consideration of particular cases. And surely this is the way in which children do acquire their knowledge of number, and in which they learn its axioms. The apples and the marbles are put in requisition, and through the multitude of gingerbread nuts their ideas acquire clearness, precision, and generality.

Says Mr. John Stuart Mill :

The fundamental truths of the science of number all rest upon the evidence of sense; they are proved by showing to our eyes and to our fingers that any given number of objects, ten balls, for example, may by separation and rearrangement exhibit all the different sets of numbers the sum of which is equal to ten. All the improved methods of teaching arithmetic to children proceed upon a knowledge of this fact. All who wish to carry the child's mind along with them in learning arithmetic—all who (as Dr. Biber in his remarkable letters on education expresses it) wish to teach numbers and not mere ciphers—now teach it through the evidence of the senses, in the manner we have described.

Mr. Spencer observes, quoting Mr. Wyse :

A child has been in the habit of using cubes for arithmetic; let him use them also for the elements of geometry. I would begin with solids, the reverse of the usual plan. It saves all the difficulty of absurd definitions and bad explanations on points, lines, and surfaces, which are nothing but abstractions.

Huxley says :

But if scientific training is to yield its most eminent results, it must, I repeat, be made practical. That is to say, in explaining to a child the general phenomena of nature, you must, as far as possible, give reality to your teaching by object lessons; in teaching him botany, he must handle the plants and dissect the flowers for himself; in teaching him physics and chemistry, you must not be solicitous to fill him with information, but you must be careful that what he learns he knows of his own knowledge. Don't be satisfied with telling him that a magnet attracts iron. Let him see that it does; let him feel the pull of the one upon the other for himself. And, especially, tell him that it is his duty to doubt until he is compelled, by the absolute authority of nature, to believe that which is written in books. Pursue this discipline carefully and conscientiously, and you may make sure that, however scanty may be the measure of information which you have poured into the boy's mind, you have created an intellectual habit of priceless value in practical life.

Combe remarked in general :

The true plan is to present the object to the children. Let them examine its form, size, color, and other particulars, and afterwards tell the name, and spell it. All nature is adapted in the most beautiful manner to the faculties, and the study of nature imparts great pleasure. Thus the curiosity of children to know things is insatiable. You are aware that they will break their playthings to see what is within. When properly taught, the elements of all the sciences are simple. Talk to a child of geometry, triangles, and hexagons, and you will puzzle it completely. But present a figure, let it notice that it has three sides and three corners, then tell it that all such

figures are triangles, and it readily understands the matter. So of the other geometrical figures. Children always take pleasure in learning by actual presentation. They can be instructed in almost anything which can be presented to them directly and subjected to their senses.

Herbert Spencer affirms also as a general principle:

The rudimentary facts of exact science are now being learnt by direct intuition, as textures and tastes and colors are learnt. Employing the ball frame for first lessons in arithmetic exemplifies this. It is well illustrated, too, in Professor De Morgan's mode of explaining the decimal notation. M. Marcel, rightly repudiating the old system of tables, teaches weights and measures by referring to the actual yard and foot, pound and ounce, gallon and quart, and lets the discovery of their relationships be experimental. The use of geographical models and models of the regular bodies, &c., as introductory to geography and geometry respectively, are facts of the same class. Manifestly a common trait of these methods is that they carry each child's mind through a process like that which the mind of humanity at large has gone through. The truths of number, of form, of relationship in position, were all originally drawn from objects; and to present the truths to the child in the concrete is to learn them as the race learned them. By and by, perhaps, it will be seen that he cannot possibly learn them in any other way; for that if he is made to repeat them as abstractions, the abstractions can have no meaning for him, until he finds that they are simply statements of what he intuitively discerns.

If, after considering the opinions of such eminent authorities, there be any who deny that the changes here urged are improvements, it will be in vain to present to their attention further arguments. Educators generally have accepted or are accepting these principles, but from what has already been said it is evident that when they speak of the museum illustrative of education they mean something quite different from the cabinet or apparatus by which the teacher of science or mathematics points his lesson. The several subjects of instruction will indeed find here their appropriate illustration; but, passing beyond these, such museums will contain all material which can, to the eye of the teacher, the parent, and the administrator, convey information respecting the relations of education to man, to industry, to art, to science, yes, to civilization. Such a collection will be to normal training what a natural history museum is to instruction in science, what an herbarium is to botany. Here the teacher, the superintendent, the school-house builder, the maker of school furniture, the sanitarian, the sociologist, should find material for thought and information.

Statesmen and students of history here find in the use or neglect of these methods the secrets of the greater or less progress of nations.

The protest against abstract methods in the training of early childhood and the effort to make more complete aids and illustrations have made rapid strides within the last fifty years. Already we have information of sixteen museums in Europe specially illustrative of education. These are located at Vienna, Buda-Pesth, St. Petersburg, Amsterdam, Rotterdam, Brussels, Paris, Berlin, Rome, Palermo, London, Munich, Dresden, Zürich, Moscow, and Berne.

The pedagogic museum holds the relation to the general museum that the pedagogical library holds to the general library. The general library

attempts to make a collection of books exhaustive of its kind, and the general museum attempts to make a general collection of articles exhaustive of its kind and illustrative of its subject.

What Mr. Perkins, that eminent friend of art, has said of collections in his department, viz, that "we aim at collecting material for the education of the nation in art, not in making collections of art," educators may say with reference to museums illustrative of education. We do not seek to make collections of objects of curiosity merely. We seek to make collections which will be illustrative of the condition, progress, and improvement in education, whether these relate to systems, or institutions, or methods, or subjects, or appliances.

All who have studied the development of education in Ontario under the eminent Dr. Ryerson have been impressed with the aid his improvements received from the educational museum he so early established.

The Japanese government, after sending commissioners to see the best systems, institutions, and methods, and calling to their aid experts, administrators, and teachers from all parts of the world, expended large sums of money in collecting the material for a museum illustrative of education.

Few governments are more thoroughly convinced of the necessity of educational museums than the government of the French Republic. There may have been differences of opinion among the great men who have been at the head of the ministry of public instruction since 1870—Messrs. Jules Simon, Waddington, Bardoux, and Jules Ferry—but on this point they are not divided.

In 1878, when France had no educational museum, the government appropriated 100,000 francs in order to enable the teachers to visit the Paris Exposition, the museum par excellence. M. Bardoux, minister of public instruction, in addressing the 12,000 teachers who had come to Paris, said, among other things:

You cannot be good teachers unless you are continually learning yourselves, and you cannot instruct children successfully unless you study every day the progress of the art of teaching. You must acquaint yourselves with new methods of teaching and with the latest improvements in school apparatus. We (the government) intend to establish educational libraries all over the country, and we shall endeavor to give you permanent cantonal museums.

Pedagogical aids advance most rapidly in the form of libraries. According to the report dated in 1880, 929 of these libraries were established in France. According to recent information they have increased to 1,725. Some departments have one and others as many as sixty-three.

Jules Ferry, minister of public instruction, published a suggestive list of books from which selections could be made by those organizing these libraries. First, are works relating to general pedagogics, such as those of Rollin, Madame Necker, Rousseau, Guizot, Locke, Herbert Spencer, and Jules Simon; second, works on practical pedagogics, those by de

Gérando, Girard, Madame Pape-Carpentier, Levasseur, and Legouvé; third, books of reference, such as the works of Joly, Cuvier, Hippeau, Buisson, and Gréard; fourth, works on the history of education at home and abroad, foreign and domestic school legislation and reports.

The minister adds:

It is not the number of books, but their value, which makes a pedagogic library.

The question of establishing museums illustrative of education has long interested American teachers and officials. They have closely watched the progress of this idea elsewhere and have considered its application at home. Their opinions, as expressed in a large number of letters recently received at the Bureau of Education, are strongly in favor of establishing such a museum in connection with the educational library already collected, in order that the first source of information for the student of pedagogics, namely, the literature of the subject, may be adequately supplemented by the second, to wit, its illustration.

They believe that there should be one place in the country where the American educator or teacher may study all that is known touching any given phase of education. They also believe that the nation can and should do this, which States and cities, however powerful, cannot do as well, and which private institutions, for obvious reasons, cannot hope to accomplish at all.

A small appropriation has been made by Congress for cataloguing, caring for, and increasing this collection, and the Bureau desires the best suggestions from every quarter in order to make its use most effective for the improvement of education throughout the country, as contemplated in these brief statements and hints.

A telegram was received and read from Superintendent Andrew J. Rickoff, of Cleveland, Ohio, announcing his inability to be present on account of illness.

It was then voted that Hon. J. W. Patterson should deliver his address in the afternoon instead of the evening, as announced.

Mrs. WALWORTH, school commissioner of Saratoga Springs, N. Y., asked whether something could not be done to teach the elementary principles of honesty and morality in the public schools.

Mr. GOVE, of Colorado, said that there was no city in the country where the teacher was not required to present testimony of a moral character and upright life, and that the influence of the teacher was better than text books or formulas of morality.

Mr. DEWOLF, of Ohio, urged that the committing to memory of the gems of literature was a most efficient means of teaching morality, and said that much could be done by the teachers towards answering these questions by living good and godly lives themselves.

Mr. MURPHY, of New York, thought that some teachers were not of high moral character, and cited the case of a teacher in Troy who sent her pupils out to buy beer.

Mr. NORTHROP, of Connecticut, said that what this gentleman had said he believed to be exceptional; he thought the great majority of the teachers in the public schools were christian teachers, who were seeking to illustrate by their lives the principles of morality and virtue.

Mr. SANFORD, of Middletown, N. Y., rose to advocate the morality of the teachers of his State, and was followed by Mr. Barringer, of Newark, N. J.

Hon. J. W. PATTERSON, observing that General Eaton had called attention to the fact that education has two sides, objective and subjective, said that the child at home begins his instruction in the objective method, which is the natural method of teaching. The perceptive faculties are developed first; afterwards the child begins to reflect. Object teaching is as old as the world. He asked if there was not danger that the other side of education, the development of the power of thought, might be forgotten.

Mr. SMART, of Indiana, recurring to the point introduced by Mrs. Walworth, wished to enter a protest against the assumption that the school-master is responsible for everything. He denied that he had such responsibility. He thought that children are not cared for at home as they should be. Still, teachers do not do as well as they can. The best kind of work and the best instruction in morals are going on in schools every hour of the day. In his judgment the power of self control is one of the greatest moral forces, and the schools were teaching this very thing.

Mr. SLADE, of Illinois, thought it was the influence exerted by the teacher that would tell, not what is in books; that if the pupils were to be made what they should be there must be character in the teachers. The public schools are the grand leveller, not by dragging any down, but by bringing up the lowly and the humble.

Mrs. WALWORTH explained that she did not bring any charges against teachers, as they were generally well meaning and intelligent, but she thought many teachers in the northern part of New York had little knowledge and might receive instruction on this point.

Dr. PHILBRICK, of Massachusetts, referred to the paper which had been read as in no way one-sided, but an exact statement of facts. No substantial progress could be made, except in the solid study of education or pedagogics. One important thing is to have pedagogical libraries; another, to have a great pedagogical museum at Washington.

General EATON moved that a committee of five on resolutions be appointed. Adopted. He then expressed regret that Dr. Elisha Harris, of Albany, N. Y., who was to read a paper on "Education and health," could not be present.

Remarks were then made by Mr. Carleton, Mrs. Hunt, Dr. Philbrick, and General Eaton, and the department then adjourned, to meet at 3 P. M.

FIFTH SESSION—THURSDAY AFTERNOON.

NEW YORK, *February 10, 1881.*

Mr. MARBLE announced the committee on resolutions as follows: J. O. Wilson, District of Columbia; H. S. Jones, Pennsylvania; Charles Northend, Connecticut; Aaron Gove, Colorado; and E. A. Apgar, New Jersey.

Hon. J. W. PATTERSON, State superintendent of public instruction in New Hampshire, read the following paper :

NATIONAL AID TO EDUCATION.

The old masters of the world arrogantly assumed that every Roman citizen was born a ruler; and hence the vainest as well as the greatest of Roman orators said, "Any one can make himself a jurisconsult in a week, but an orator is the production of a lifetime." Aristotle, more thoughtful and observant of the causes and drift of human affairs, said, "All who have meditated on the art of governing mankind have been convinced that the fate of empires depends on the education of children." The political philosophy of the great Athenian voices the experience of all the ages since his day. It would be easy to fill the time allotted to me with utterances of similar import from publicists and practical statesmen of every period and phase of civil progress.

The conservative forces of government are moral, not physical. It is the intent and spirit of the people which give validity and inviolability to law. Without this it is soulless and impotent. Statutes cannot bring order and prosperity to a state whose citizens are not a law unto themselves. A people who have not an intelligent appreciation of liberty, and do not see the line beyond which it passes into license, will perpetually chafe and rebel against its necessary limitations. They are not safe guardians of civil freedom, if they do not apprehend its nature and the institutions by which it is reduced to a system of practical government. Individuals who, like children and madmen, have not the capacity or disposition to govern themselves in a way to subserve their own or the public interest, cannot claim the right of self government. Equally, a state in which a large majority of the people do not comprehend the nature and genius of free institutions cannot assert the right of popular government, and has no cause to complain of the restraints of a higher power that would suppress the violence or fraud that tends to the overthrow of law and liberty. Should the intelligence of the electorate of any State of our Union decline so low as to render self rule a farce or a peril, unquestionably that article of the Constitution of the General Government which guarantees a republican form to every State comes into action and is paramount to all State authority. The guarantee carries with it an implied power to guard against such a contingency, not necessarily by force, but by

demanding or providing in each State the means of popular education. It is idle longer to talk of this as an exclusively local or State question. It involves the welfare and life of the Union, and is therefore a national question. It is true, "the national charter," as Judge Tourgee has said, "is dumb in regard to it;" but it is potentially in it. The conception is as old as the convention of 1787, and destined soon to come to its birth in some living form. As the great war powers slumbered in the Constitution till wakened into activity by the necessities of the Government, so this will be seen to be a legitimate offspring of fundamental law when the instinct of self preservation shall demand it. The Republic carries with it, written or implied, the right to perpetuate itself; and national education being essential to that end, its maintenance will be found necessary to transmute the blind, brutal instincts of ignorant masses into intelligent forces of strength and prosperity. We have not yet realized the full measure of disaster possible to a free state based upon popular ignorance, but the drama is on the stage and may yet become a tragedy of blood.

I will not repeat statistics familiar to the public mind, but must recall for your reflection the painful fact that 45 per cent. of illiteracy in sixteen States of the Union has not only placed all political power, in that section of the country, in the hands of a majority of the remaining 55 per cent. of voters, but, not to mention its weight in the electoral college, has given to one-twelfth of the voting force of the Republic 72 per cent. of power in the lower and 84 per cent. in the upper branch of Congress. The illiterate balance of power, incapable of understanding or too weak to defend their rights, may be excluded or defrauded at the polls, the constitutional guarantee of State republics defied, and the vast interests of the country subjected to a usurped power of legislation.

But history suggests to our apprehension yet graver perils. This blended mass of humanity, which to-day may be the convenient instrument of personal avarice or ambition, awakened in the bitter conflicts of party to a consciousness of its strength, held by no moral restraints, and maddened by some real or fancied social wrong, may at length sweep down, with the resistless power of elemental forces, in the States so cursed, all the forms and landmarks of an inherited liberty, or, like a Parisian mob, stain its altars with the blood of the purest and ablest of the land. Should such an emergency come to us, as it has to other republics, nothing but national power could arrest the desolation; and the Executive, in the discharge of his duty, would be forced to intervene to rescue society from destruction. When we reflect that such possibilities may become an accomplished fact, shall our activity in the cause of popular education be paralyzed by the timid assertion that the work is not national, but one left to the care of the several States? What if the States refuse or neglect to care for this common interest; shall the nation slumber over the restless volcano till it is too late to save our interests, our honor, or our liberties? A people upon whom the respon-

sibilities of the ballot have been cast have a right to demand of the government which conferred it a degree of intellectual training which shall enable them safely to discharge its functions. But we are told we cannot afford to thus secure the future at the cost of sacrificing the fundamental principle of the local distribution of power. Here we are met again by the ever recurring, never ending dogma of State sovereignty, which, without the discrimination of the ghost of Banquo, stalks obtrusively into every subject, seemingly unconscious that it is a ghost. State rights are sacred and impregnable barriers to the usurpations of central power, but are impotent and untimely obstructions in the path of national safety. Will not all State rights perish in the doom that awaits the universal decline of popular intelligence? But will some advocate of local sovereignty tell us how a national supervision of this great department of the common welfare is to imperil State rights more than the regulation of commerce and currency? The exercise of concurrent educational powers in the States is no more dangerous to personal or State rights than the discharge of concurrent judicial functions or the exercise of a concurrent power of taxation. The objection is the spectre of a disordered fancy, and has no real existence. But if it were true, it would be no loss to exchange a paralyzed State function for a national one that would breathe vitality through the whole organism of society. Of what value are rights to a State, if its population cannot discriminate or comprehend them, and have not the ability or spirit to defend them? Abstract political powers are a utopian dream without the intelligence to recognize and embody them in practical laws and institutions. Political power is a dangerous weapon in the hands of a people who have not the wealth, the arts, the utilities, the industries, the altars, and the homes that spring from the schools. Not simply our foreign influence and Federal unity, but the domestic prosperity and security of the States must fall with the decline of local intelligence.

The laws of trade and social economy, the inventive skill, the thrift and enterprise of business, the capacity for industrial production, and the accumulations of wealth, the growth of brain power, and moral stamina which bring influence and character to communities have their birth and nourishment in the schools. All these and the absolute security of States against the encroachments of Federal power will be found in a system of free universal education. The ingenuity and skill of the workshop, the sense and manliness of the farm, the scope and enterprise of commerce, the genius and heroism of arms, the wealth and pathos of literature — all industries and all professions droop and die in the eclipse of popular intelligence.

The question of congressional aid to education is fundamental, and has been forced into the arena of legislation against the wish of parties by vexed problems for which statecraft can find no other solution. The situation is abnormal and disgraceful, and demands the forecast of prudent statesmanship rather than the empiricism of politics. Experience

teaches us that this great interest cannot longer be left to the exclusive care of the States.

The census of 1870 revealed the startling fact that more than one-fourth of our whole population above the age of ten years could neither read nor write and more than one-half the population of the late slave States above that age were illiterate. We do not allude to this in a spirit of crimination, but because it is an essential fact in the discussion. The advantage of the North, and especially of New England, in this regard has resulted from the circumstances of settlement and the character of their industries. This difference constitutes no legitimate ground of inaction. We of the North cannot innocently refuse to coöperate in an effort to remedy this great public peril because it is largely local, nor ought we to complain that the funds demanded for its removal, to be effective, will have to be distributed on the basis of illiteracy, and therefore unequally; for, while we may not derive as many advantages, we shall be benefited as essentially as the less favored section and in the only way in which the evil can be reached. We are one people. Our industrial and political interests are bound in a perpetual wedlock, and the whole family of States must rise or fall together. We cannot say one to the other, "I have no need of thee," but the members should have the same care one for another, and whether one member suffer, all the members suffer with it, or one member be honored, all the members rejoice with it.

There is an explicit grant of power in the third section of the fourth article of the Constitution, "to dispose of, and make all needful rules and regulations respecting, the territory or other property belonging to the United States." Basing its action upon this constitutional provision, Congress, in pursuance of a policy adopted anterior to the organic law, has, at successive periods since the administration of Washington, made grants of land for educational purposes, aggregating 95,737,714 acres. It has also made direct appropriations of money for this purpose, which amount to \$47,785,197.93. In many of these cases Congress has made, in accordance with the letter of the Constitution, specific regulations for the expenditure of the sums appropriated.

In view of this record, covering the whole period of our history, it is too late to question the power of the General Government to appropriate public funds for educational purposes and to disburse the same directly by its own agents. Such appropriations on the basis of illiteracy are not liable to the charge of an unequal distribution of public funds; for they are not given as donations to States or citizens, but for "the common defence and general welfare." Like forts and lighthouses at ports of entry and military and naval schools, they are not local but general in their purpose and effects. But in what form this national aid can best be applied is a practical question, demanding the most careful consideration. The independent *right* of the General Government to educate its people for the proper discharge of their public functions is incident to

its very existence. But as intelligence is an antecedent condition of self government, it must be conceded that the right to educate its citizens belongs also to each State; that right, however, cannot *limit* the obligation to the States, for the citizens of the States are citizens of the United States, and therefore the General Government, whose powers are supreme within their range, is bound to secure to all the children of the Republic, directly or through the States, suitable and sufficient opportunities to prepare them to discharge intelligently and safely their political duties. The public welfare is the supreme law of every State, whether founded upon a written or unwritten constitution; but the attempt to supplant State schools by a national system, or to establish a binary system, would be a measure so radical and hazardous that it should only be resorted to as a last expedient against the dissolution of the Republic. On the other hand, the distribution to the States of national funds, to be disbursed by them without supervision or responsibility, would be a failure as a permanent educational policy. Revenues so received would be lost in the scuffle and antagonisms of politics, or, like the old "surplus revenue" of 1836, vanish into thin air through a thousand follies. Should this not happen it would be diverted into special channels by dominant State prejudices or be made to minister to the higher education, while popular ignorance, which it is designed to remove, would be left to increase.

Colleges and universities will spring as a natural growth from public intelligence, but common schools must be planted and fostered by the government. The most urgent demand of the Republic to-day, looking at its political and social necessities, is a system of free primary instruction that shall reach all classes, races, and sects, and be directed and inspired by a supervision at once intelligent and unflagging. Unfortunately, districts the most benighted and deplorable are the last to realize their situation, and others have not the means to better their condition. National aid should be applied to the localities and populations most in want, and by an impartial intelligence that will make no mistakes.

In matters of such moment Congress should be guided by the rules of business which hold between private parties. Let it be sure that the thing paid for will be received. Security is the law of business between honest men, and surely parties who ignore conscience and repudiate solemn obligations have no reason to complain if held to the same rule.

To devise a wise and practical plan of national aid and supervision of instruction should be the work of an intelligent commission familiar with the wants and conditions of all sections; and even this would have to be perfected by experience, like other permanent institutions.

I would not presume to foreshadow a system in matters so fundamental and organic; but we may venture to suggest that the plan adopted and so successfully administered in the distribution and application of the Peabody fund would be a safe and instructive precedent for statesmen in the disposition of national funds to the same cause. I am disposed

to believe that, whether the proposed aid is to come from an invested fund or from annual appropriations, it should be paid directly to districts by educated and responsible agents appointed by the executive, and on such conditions as to improve and lengthen schools already existing and to secure the establishment of others in localities where they are needed. These school agents should act in harmony with local officials as far as possible, but be independent of State control and required to examine by visitation and report in detail the condition and wants of their respective districts to the Commissioner of Education. Such beneficent supervision by the Government if judiciously conducted would be felt to be beneficial to all interests, and would serve to draw the fellowship of the States into a closer union by invisible ties of gratitude and love. Or, if in any case prejudice, pride, or some fancied right should refuse to submit to an inspection designed to increase and perpetuate the blessings of liberty, it would furnish to the Government an opportunity to assert its paramount sovereignty in a case that would command the approval of mankind, which might be an incident little to be feared or regretted. It is best that the lines of power should be sharply drawn, and questions of jurisdiction set at rest by the court. We do not insist on mixed schools nor attempt to lay down the specific conditions on which public moneys shall be distributed for educational purposes; but we insist that it should be in accordance with the constitutional provision that "No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States."

I am not unaware that this scheme of national intervention in the educational interests of the country has been opposed on the plea that we cannot show any express power delegated to Congress to establish a system of schools in the States, and that consequently the power is reserved to and belongs only to the States. Our answer is that the objection is irrelevant, for we are not asking for the overthrow of State systems or the establishment of a national system. We are simply asking that Congress may go into the States and direct the expenditure of funds which, it is admitted, it has a right to appropriate for such purposes.

When Government appropriates public moneys, they should be disbursed by agents responsible to itself; but, if States have exclusive control of education, funds given for its advancement may be so diverted as to defeat the end in view. It has been done, and may be done again, without remedy.

But the right of such *supervision* is denied, on the allegation that it is not in the bond. I admit it is not in the letter; but I claim that it is the intrinsic life of the bond, without which it could not exist. If we are to deny to Congress all powers incidental to those expressed in the Constitution, we must abolish the Department of Agriculture and the Coast Survey, so essential to two of the great industries of the country;

shut up our Naval and Military Academies, and fold our arms in war and rebellion, and go to pieces for want of the constitutional power of self defence. Nay, one-third of the legislation of Congress is void, and the very charter of our liberties becomes a procrustean bed upon which the Republic is bound, and beyond which it can never hope to reach in all the progress of the ages.

We are told that "Federal education was not contemplated as necessary to 'establish justice, to insure domestic tranquillity, provide for the common defense, promote the general welfare, and secure the blessings of liberty to the people.'" Such language in our country and at our time is marvellous. Without popular education popular governments have no right of existence and cannot be maintained when established. The Republic has as legitimate a right to protect itself against ignorance as against pestilence and rebellion. Education informs and quickens the inventive powers, by which improved methods and new forces are given to productive industry; it lifts the poor from the ranks of dependent labor into the fields of enterprise and responsibility, and surrounds them with the utilities and beauties of life; it opens to the intellect the realms of thought, and leads it through the galleries of art and science; it gives to the nation wealth for poverty, strength for weakness, and primacy for subordination; but not for one or all of these does the Republic open its treasury for the advancement of knowledge. It is solely as an act of self defence that the Government comes to the rescue of the schools. For this, if the proceeds of the sale of the public lands are insufficient, it has the right to pour out millions and dictate and control the method and the direction of their disbursement.

In this connection we should remember that the strongest defences of nations are not armies and navies, but the affections and patriotism of their citizens. A common pride in the achievements and a common faith in the character and destiny of the government are essential to its peace and perpetuity. Discordant creeds are the precursors of faction and dissolution. The schools are the nurseries of public sentiment, and should have but one curriculum of political philosophy and civil history. The past is admonitory of the future. To remove a cancer and leave its roots is not cure, but relief. The fatal hour is only delayed. In war he conquers whose principle survives the conflict of arms. If history is reversed, if treason and patriotism are transformed, if opposite theories of government are inculcated, and pride and shame interchanged in our sources of national thought, are we acting the part of a prudent regard for the welfare of posterity? Are we not holding a chalice of blood to the lips of our children, and is it playing the rôle of statesmen for our public men to shut their eyes and ignore such facts? Has our government no power to enforce, I do not say a uniformity of text books, but the inculcation of a common national sentiment and political philosophy in the schools?

I realize how difficult and delicate is the subject of which I speak,

but it is legitimate to the occasion, and it would be cowardly to blink it out of sight. I cherish no feeling of sectionalism and would utter no word of crimination; but I am sure it is not wisdom to allow great dangers to drift us in silence into irretrievable ruin, when there is no real ground of difference of theory or action, but only pride and prejudice. The irreconcilable antagonism between free and slave labor, from which sprang the divergent theories and sectional bitterness of our old time politics, having perished with the war, there is nothing left but habits of thought and wounded pride to withhold us from mutual regard and a cordial coöperation in all that can advance the prosperity and glory of the country. Neither can deny to the other honesty of convictions or courage in battle, and this rescues the dead of both sections from dishonor. Why contend longer over obstructions and dead issues? Credit and trade, labor and skill, civil power and the social amenities, are all paralyzed by this persistent rancor of sectional jealousy, surviving its causes for a score of years. Our respective industries would be strengthened and made lucrative by mutual confidence and the fraternal emulations of business. Property would appreciate and resources develop, science be quickened and literature enriched, private virtue become more sacred and social happiness more universal, if we should give less time to the differentia of politics and more to the essentials of life. So long as opposing theories as to the nature and later history of the Government shall be taught in the different States, so long there will be bitterness and vituperation in the press, angry debates and disgraceful scenes in Congress, and portents of more direful disasters in the future.

But the cure must come from without. The Ethiopian cannot change his skin, nor an insane man reverse his thoughts. If reason and self interest have lost their control in the States, there must be a supreme power that holds and moves them in their orbits, if we are a nation, that can reach and remove the causes of discontent and peril.

The census reveals the fact that a large percentage of the illiterates of the country are of foreign birth. Emigration has become the policy of European states, as a relief to their institutions from the strain beneath. Our country has been made the field into which the ignorance, poverty, and hate of these revolutionary masses have been poured. Like pent-up gases they become harmless, for the most part, when the pressure is removed; but, crippled in capacity and with nothing to tax, they crowd under the protection of Federal law into the States and fill their school-houses with children. It is but right, therefore, that the enhanced burdens thus thrown upon the property of the States, if they do their duty to the children, and which in the aggregate amount to millions, should be relieved by national aid. There must be a rapid and constant decline in the intelligence, capacity, and character of our population, if these teeming millions are left uneducated and unassimilated.

We do not often stop to consider what changes have taken place since our gates were thrown open to the world. The influx of the overcrowded

peoples East and West by the modern facilities of transportation could not be anticipated a century ago. This change necessitates corresponding changes in our internal policy. The schools must be multiplied and improved in methods and force, so as to keep pace with this drifting multitude, whose numbers outrun their means.

The failure to assimilate these millions, and bring them into full sympathy with our institutions and habits of thought, is already felt, especially in those great centres into which they have crowded in the largest numbers. It is not immigration or change we deprecate, but deterioration. The successive invasions of England were terrible visitations, but they poured fresh vigor and broader sentiments into the old Briton, from whose mixed blood has sprung the brawny liberty loving Englishman of history. With them there was a constant growth through their ages of battle. But our pauper immigrants are not Saxon or Norman invaders, and we fear a constant decline through our ages of trade. The children of these strangers within our gates must be made American in thrift and skill and in their political aspirations and pride; they must be lifted by knowledge above the control of party passion and be inspired with a personality that will not suffer them to be the tools of personal ambition; they must be made to apprehend the nature and genius of our institutions and to love the flag of the Republic as the symbol of freedom and power. Does the past justify us in the belief that the States will do all this? The age is characterized by broader views and quickened efforts in the cause of popular education. Governments have at last been forced to adopt it as the policy of success. Its power has been discovered in the productive force imparted to industry, in the triumphs of science, and in the achievements of war. Discoveries and inventions are the footsteps of its progress; it is recognized in the gift of the ballot and the subordination of leaders to the popular will; it is heard, not in the drum roll, but in the music of machinery; its growth is realized in the widened uses of literature and the utilities of art; lightning and steam are the contestants in its Olympiads, and it gathers its battle flags at Sedan.

While the statesmanship of Europe is pouring out millions in the rivalry of her systems of schools, shall we stand still to be swamped in the surf that rolls from her shores? To-day we are hardly abreast with England, France, and Prussia in the character and resources of our schools. And shall we be told that the Government must fold its arms with the shallow pretence of a want of power and leave this work exclusively to the States, which cannot realize or feel the responsibility of this magnificent competition of empires in the march of knowledge and the growth of mental power? The policy will be a cowardly and suicidal acknowledgment of impotency, and, if persisted in, we shall learn to our sorrow that an ignorant people is an inferior people in all the elements of national greatness. If the bill now pending before Congress is too narrow for either aid or incitement, let its gifts be enlarged to the

measure of our wants. The nation is not impoverished when it gives to itself. Revenues so bestowed will be a profitable investment. It is but casting bread upon the waters that will be found after many days.

We should be glad to help build the waste places made desolate by war, if only hereafter they may be allowed to blossom with the fruits of an intelligent industry and social peace. The day is not distant, I trust, when both the North and South will learn that the rivalries of labor and trade and the emulations of literature and science are more profitable than the squabbles of politics or the feeding of old fires that ought to be dead. Let us unite in the noble enterprise of making our country foremost in the march of intelligence, foremost in the dignity of power, and foremost in the purity of its civilization.

The national domain is the common property of the Republic, and should be used to promote the general welfare. We can conceive of no employment of the proceeds of its sale of more general and lasting utility, and none more honorable to a free, christian people, than its application to the building up of a permanent system of free schools that shall be adequate to supply the demands of the future. This is an essential condition of national stability and prosperity. No subject of legislation more urgently demands a liberal appropriation than this. It will be an irreparable misfortune if, in a scheme so grand in its nature and so far reaching in its influence, we come to a deadlock over the puerile conceit that any material or moral interest can suffer from a concurrent but carefully defined advisory control of popular education by the General Government. In this the interests of the State and nation are one, and coöperation may bring them more closely together. Nothing is demanded which can limit or subvert any valuable prerogative of State power. Enlarged intelligence imparts a clearer apprehension of rights and an enhanced power to defend them. Armies and navies are defences against foreign aggression, but school-houses are the natural and effective security of governments against the domestic faction and violence that are engendered in the homes of ignorance.

The people are the sovereigns and citizens of both the State and the nation, and can claim the right to be fitted for their political functions from both. When the first is unable to discharge its trust, the latter should come to its aid in a peaceful coöperation. But when a State wilfully neglects to provide the means of knowledge for the poorest and humblest of its children, the supreme power of the nation possesses, beyond a reasonable doubt, the right to intervene in the interest of national intelligence, and provide, in such way and by such agents as Congress may judge best, for the education of the children of its neglected citizens. But we will not dwell upon this, for the question to-day before the American people is rather one of patriotism than one of right. The call is not to the defence of a prerogative, but to the discharge of an imperative duty. National inferiority and ultimate anarchy or despotism are the inevitable fruits of popular ignorance, that cannot

discern the real interests or the conditions of safety and prosperity to the country. School-houses have done more for the German Empire than military academies for France or great universities for England. Industrial success, military power, political superiority, intellectual achievements, and national character, all have their springs in high popular intelligence. Our destiny as a republic and our place in the march of civilization are involved in the maintenance or failure of a system of free universal education.

The paper excited animated discussion, in which many of those present participated.

Dr. PHILBRICK referred to the interest which Presidents Grant and Hayes had manifested with respect to national aid for education, dwelt upon the favorable progress of public sentiment as shown in the attitude of Congress, and expressed his conviction that the time had come for urging the matter.

Mr. NORTHROP, of Connecticut, admitted that his views had changed within a few years, and he believed the present conditions of the country warranted national aid for the support of education.

Mr. NEWELL, of Maryland, deprecated any interference on the part of the General Government with the local management of school affairs, but was deeply impressed with the need of national aid, especially in the work of extending education through the South. While the southern people are anxious to educate their masses, the blacks as well as the whites, he knew that they are not able to bear the expense.

President ANDREWS, of Marietta College, dwelt upon the distinction between national aid and national control. He hoped that the Burnside bill would not pass in its present form, but that the States would receive help according to their illiteracy.

Mr. MOWRY, of Rhode Island, believed that the power and influence of the National Government should be exercised within proper limits in the interests of education, and he desired the passage of the Burnside bill as a measure of great public utility.

Mr. MARBLE announced that the hearing of the reports of the committees was in order.

Mr. SMART, chairman of the committee to memorialize Congress, said that the committee were not prepared to report yet.

It was voted to leave this matter to the further consideration of the committee, and it was authorized to attach the names of the members to the memorial.

The committee on the unification of school statistics was also continued.

By invitation FREDERICK A. TALCOTT, of the world's fair committee, addressed the meeting and presented the claims of the fair, asking the coöperation of the teachers in making a fine educational display. He was followed by Ex-Governor Crawford.

The following resolutions were adopted :

Resolved, That the members of the National Superintendents' Association, now assembled, have heard with pleasure the statements in regard to the forthcoming world's fair of 1883, which have just been made by the gentlemen representing the commission, and that in response thereto we hereby pledge our hearty support to this great enterprise. We pledge also our best endeavors to make an exhibition of our educational products at the fair which shall form one of its most interesting and profitable features.

Resolved further, That the executive committee of the United States international commission be hereby requested to place the educational exhibit of the world's fair of 1883 on an equality of rank with the other great sections of the exhibition, and that a separate department be created in which all the educational products exhibited by institutions, States, and nations may be placed.

Mr. WILSON, of Washington, chairman of the committee on resolutions, submitted the following resolutions, which were adopted :

Resolved, That the thanks of the Department of Superintendence of the National Educational Association are due and are hereby tendered to Superintendent N. A. Calkins and the friends of education of New York associated with him, for the admirable arrangements made for the present meeting and for the elegant and bountiful entertainment provided for the members on Wednesday evening.

Resolved, That the thanks of the department are due and are hereby tendered to the president of the College of the City of New York, the president of the Normal College, and the superintendent of the Museum of Natural History for cordial invitations to visit their respective institutions.

Resolved, That the thanks of the department are due and are hereby tendered to the proprietors of the Grand Central Hotel for the excellent accommodations afforded the members at special rates.

Dr. WICKERSHAM moved that the association reiterate its former opinion in regard to national aid to education. Carried.

Mr. MOWRY announced the next meeting of the American Institute of Instruction.

The department then adjourned sine die.

CIRCULARS OF INFORMATION

OF THE

BUREAU OF EDUCATION.

N o . 4 - 1 8 8 1 .

EDUCATION IN FRANCE.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1881.

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LETTER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., September 24, 1881.

SIR: This Office from time to time has published circulars of information concerning the condition of education in foreign countries. These circulars have done much good, because they have enabled educators here, without going abroad, to compare foreign systems and methods with ours.

The necessity and usefulness of studying foreign school systems have been recognized by all civilized nations. When the French authorities began to investigate the general illiteracy of the population of France, they sent an eminent educator, M. Victor Cousin, to Prussia to see what could be learned from that enlightened nation. M. Cousin's recommendations were of great value to M. Guizot in the preparation of the fundamental school law.

France renewed this practice in 1873, when another eminent educator, M. F. Buisson, was sent to Vienna to study the school systems of the different nations represented at the Universal Exhibition of 1873. M. Buisson especially recommended on his return the preparation of annual school statistics as they are exhibited by this Office in its annual reports.

Again, in 1876, France sent a delegation of six members, under the presidency of M. Buisson, to this country to study our elementary school system, with a view to introducing reforms at home. The result of this visit was a valuable and voluminous report that exerted a great influence on French education. All the educational projects of law and ministerial decrees since 1876 have been largely affected by American methods. The opponents of the republic are fully aware of this fact; they openly declare that the present government intends to Americanize the whole French school system.

The necessity and usefulness of studying foreign school systems was equally recognized by the English schools inquiry commission, which charged Rev. James Frazer, now bishop of Manchester, and Matthew Arnold to study the condition of education abroad.

The Bolivian authorities, in 1872, made a special study of American schools, preparatory to a reorganization of the school system in that state.

In the same year an educational commission formed part of the em-

bassy extraordinary from Japan to the United States. The head of this commission (afterwards vice minister of the Japanese department of education) came to this Office and made a thorough preliminary study of statistics, facts, methods, and laws. He then went to several important educational centres in the country and personally investigated the practical workings of American ideas and methods. Ever since, the Japanese educational department has corresponded and exchanged documents with this Office. Mr. Tanaka not long ago was promoted to another ministry, but the following letter shows that the department has not forgotten the service rendered:

TOKIO, NIPPON,

Fourth, second month, fourteenth year of Meiji (1881).

SIR: I have the honor to inform you that I have recently been appointed minister of education. I am much gratified to hear that Mr. Tanaka, formerly our vice minister of education, has obtained valuable assistance for promoting the cause of our education through the friendly communications you have kindly consented to keep with him. Now, I sincerely desire that as a successor of Mr. Tanaka I shall equally be honored with your friendship for the future as he has been before.

With best wishes for your happiness and prosperity, I am, sir, your most obedient servant,

KAWANO TOKAMA,
Minister of Education.

Hon. JOHN EATON,
Commissioner of Education.

Well informed educators understand how wise was the development of public instruction in the province of Ontario and how successful its practical application to the wants of the people. These results are largely due to the habit of Dr. Ryerson, so long chief superintendent of the province, of studying the educational systems of other countries, and of selecting therefrom those parts which were most suitable to the circumstances of Ontario. Several of his reports are well known and have proved useful in this country.

Austria, in 1876, charged her commissioner general at the Philadelphia Exhibition to prepare a report on education in the United States.

Brazil sent a special educational commissioner in 1876 to study our normal school system.

Portugal sent, a few weeks ago, an eminent professor to this Office to get information concerning high schools and colleges; and her minister at Washington was instructed a short time ago to ask this Office for a statement on industrial, technical, and agricultural schools in our country.

Even enlightened Prussia deems the study of foreign systems essential to educational progress. Only recently three eminent educational functionaries were sent to Sweden and Denmark to study the newly established technical departments in primary schools.

American educators are especially anxious to know how school affairs are managed abroad, and particularly in France since the overthrow of the empire in 1870.

A résumé of educational events and school laws in France and other countries has formed a small part of my annual reports. I am at last able to present the accompanying account of education in France, derived from a series of admirable reports covering, in all, 3,523 folio and quarto pages.¹

These reports contain so much valuable information that this abstract of them will doubtless be read with great interest.

I would recommend its publication as a circular of information.

Very respectfully, your obedient servant,

JOHN EATON,
Commissioner.

The Hon. the SECRETARY OF THE INTERIOR.

Publication approved.

S. J. KIRKWOOD,
Secretary.

¹This account is compiled from the latest official reports, viz: (1) *Statistique de l'enseignement primaire. (1876-1877.) Tome premier. Paris, 1878.* (2) *Statistique de l'enseignement primaire. Tome second. Statistique comparée de l'enseignement primaire. (1829-1877.) Paris, 1880.* (3) *L'enseignement primaire à Paris et dans le département de la Seine de 1867 à 1877. Paris, 1878.* (4) *Statistique de l'enseignement secondaire. Paris, 1878.* (5) *Statistique de l'enseignement supérieur. Paris, 1878.* (6) *Annuaire de l'enseignement libre pour 1879.*

INTRODUCTION.

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EDUCATION IN FRANCE.

INTRODUCTORY REMARKS.

France was proclaimed a republic September 4, 1870. The present constitution, voted by the National Assembly, dates from February 25, 1875. It vests the legislative power in an assembly of two houses—the Chamber of Deputies and the Senate—and the executive power in a chief magistrate called President of the Republic. The present incumbent is M. Jules Grévy. The Chamber of Deputies, elected by universal suffrage, is composed of 532 members. The Senate is composed of 300 members, of whom 75 hold their seats for life, the vacancies being filled by the Senate. In the case of the remaining 225 seats the communes and municipalities elect a fixed number of senatorial electors, who in their turn meet together to choose the senators. Of the 225 senators 75 go out at successive periods of three years. The President of the Republic is elected by a majority vote of the Senate and Chamber of Deputies united in National Assembly. He is chosen for seven years and is eligible for reëlection.

France has an area of 204,091 square miles and a population of 36,905,788. The city population is 11,960,724 and the rural population 24,945,064. The number of children between the ages of 6 and 13 is 6,409,087. The whole territory of France is divided into 87 departments, over each of which presides a prefect, who represents the central government. For educational administration France is divided into 16 academic districts, each of which is under the control of a rector, assisted by an academic council. The central towns of the academic districts are the centres of scientific and literary activity. Such towns are Paris, Aix, Besançon, Bordeaux, Caen, Chambéry, Clermont, Dijon, Douai, Grenoble, Lyons, Montpellier, Nancy, Poitiers, Rennes, and Toulouse.

At the head of the educational administration is the minister of public instruction. His department is divided into three sections, each of which has a director. These sections are (1) the section of primary education, (2) the section of secondary education, and (3) the section of superior education.

Special schools are almost exclusively under the control of other ministries.

The minister of public instruction is supported by the superior coun-

cil of public instruction, which has been reorganized by law of February 27, 1880, of which the following is an abstract :

TITLE I.

The superior council of public instruction.

ARTICLE 1. The superior council of public instruction is composed of the minister, president; 5 members of the Institute, elected by the Institute in general assembly and selected from each of the five classes; 9 councillors appointed by the President of the Republic on the nomination of the minister of public instruction and chosen among the present and former directors in the ministry of public instruction, the present and former inspectors general, the present and former rectors, the present and former academic inspectors, and the present and former professors of public schools; 2 professors of the College of France, elected by their colleagues; 1 professor of the Muséum, elected by his colleagues; 1 ordinary professor of the faculties of Catholic theology, elected by his colleagues in general assembly; 1 ordinary professor of the faculties of Protestant theology, elected by his colleagues; 2 ordinary professors of the faculties of law, elected by their colleagues; 2 ordinary professors of the faculties of medicine or mixed faculties, elected by their colleagues; 1 ordinary professor of the Superior School of Pharmacy or the mixed faculties, elected by his colleagues; 2 ordinary professors of the faculties of sciences, elected by their colleagues; 2 ordinary professors of the faculties of letters, elected by their colleagues; 2 delegates of the Superior Normal School, elected by their colleagues from their number; 1 delegate of the Special Normal School (*Ecole normale d'enseignement spécial*), elected by his colleagues from their number; 1 delegate of the *École nationale des chartes* (for the training of archivists and paleographers), elected by his colleagues from their number; 1 ordinary professor of the School of Living Oriental Languages, elected by his colleagues; 1 delegate of the Polytechnic School, elected by his colleagues from their number; 1 delegate of the School of Fine Arts, elected by his colleagues from their number; 1 delegate of the Conservatory of Arts and Trades, elected by his colleagues from their own number; 1 delegate of the School of Arts and Manufactures, elected by his colleagues from their number; 1 delegate of the Agronomic Institute, elected by his colleagues, and from their number; 8 *agrégés* (supernumerary professors of the lycées) from each of the classes of grammar, letters, philosophy, history, mathematics, physical or natural sciences, modern languages, and special education, elected by the whole body of *agrégés* of the same class who are professors or teachers in the lycées; 2 delegates of communal colleges, elected by their colleagues; 6 members of primary education, elected by the inspectors general of primary schools; 4 members of private schools, appointed by the President of the Republic on the nomination of the minister of public instruction; and numerous others.

ART. 2. All the members of the council are appointed for four years. They may be indefinitely reappointed.

ART. 3. The nine councillors appointed by the President of the Republic and six additional members, designated by the minister of public instruction, constitute a permanent committee.

ART. 4. The duties of the permanent committee are to study the programmes and regulations before they are submitted to the deliberation of the superior council, and to give advice relative to the creation of faculties, lycées, colleges, primary normal schools; the creation, reorganization, or suppression of chairs; the class books, library books, and prize books to be prohibited in the public schools; and, finally, all the questions concerning courses of study, school management, and discipline which may be submitted by the minister of public instruction. Whenever a chair in a faculty becomes vacant, the permanent committee, in concurrence with the faculty in which the vacancy exists, presents two candidates. As regards vacancies in the faculties of

theology, the permanent committee gives its advice concerning the nomination made by the minister of public instruction.

ART. 5. The superior council gives its advice relative to the programmes, the methods of study, the examinations, the regulations concerning management and discipline in public schools; the regulations concerning the examinations for degrees and the supervision of private schools; the text books, reading books, and prize books to be prohibited in private schools as being contrary to morals, the constitution, and laws; and the regulations concerning the authorization of foreigners to teach in France or to open a school.

ART. 6. A decree in accordance with the advice of the superior council will fix the fees for matriculation, for examination, and for diplomas in superior institutions of learning, as well as the age for admission to the several grades.

ART. 7. The superior council constitutes a final court of appeal in disputed and disciplinary matters previously decided by the academic councils and departmental councils.

ART. 8. The council holds two general meetings a year, but the minister of public instruction may call extra meetings whenever he deems it necessary.

TITLE II.

Academic councils.

ART. 9. There is an academic council in the principal city of each department. This council is composed of the rector, president; the academic inspectors; the deans of the faculties of Catholic and Protestant theology, law, medicine, sciences, and letters; the directors of the superior state schools of pharmacy, the directors of the schools of medicine and pharmacy, and the directors of the schools preparatory to higher instruction in sciences and letters; 1 ordinary professor of each of the faculties and superior schools named above, elected by their colleagues; 1 ordinary professor of the Preparatory School of Medicine and Pharmacy, elected by his colleagues; 1 ordinary professor of the Superior Preparatory School of Sciences and Letters, elected by his colleagues; 1 provost and 1 principal of a lycée and communal college, appointed by the minister; 2 professors of sciences of the same grade of schools, elected by their colleagues; 2 professors of letters of the same grade of schools elected by their colleagues; 2 professors of sciences and letters of communal colleges, elected by their colleagues; 2 members of the councils general and two of the municipal councils, appointed by the minister.

ART. 10. The members of the academic council are elected or appointed as above for four years. They may be reappointed or reelected.

ART. 11. The academic council gives its advice relative to regulations concerning lycées, communal colleges, and public superior schools, the budgets, and the management and discipline of these institutions. The academic council submits to the minister an annual report on the condition of secondary and superior institutions of learning and on improvements which may be made.

The minister of public instruction or the rector submits to the council disputed or disciplinary questions relating to secondary and superior schools, public and private. The academic council pronounces judgments, from which the defendants may appeal to the superior educational council. The appeal must be noted within two weeks after the announcement of the judgment.

ART. 12. The academic council holds two regular sessions a year. Extra sessions may be called by the minister.

ART. 13. Independent of the disciplinary powers established in articles 7 and 11 of the present law, the minister of public instruction may reprimand teachers of public schools before the academic council, and he may censure them before the superior council. No appeal can be taken from these decisions.

ART. 14. The minister has also the power to transfer a professor of a superior school

to an inferior position after consultation with the superior council, and a secondary teacher after consultation with the permanent committee.

ART. 15. The minister may pronounce a suspension for a period not exceeding one year without withholding the salary. A suspension for a longer period, or with total or partial loss of salary, can be pronounced only by the academic council, or, on appeal, by the superior council.

ART. 16. All laws and regulations contrary to the present law are repealed.

PRIMARY INSTRUCTION.

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PRIMARY INSTRUCTION.

I.

Following is an abstract of the report on primary education for the school year 1876-'77,¹ the introductory remarks being by M. A. Bardoux, minister of public instruction:

INTRODUCTION.

The minister of public instruction has just renewed a practice of the July monarchy which one of the men who have most honored the liberal cause, M. de Montalivet, inaugurated in 1831, and which was continued by the illustrious author of the fundamental law of primary education (M. Guizot), and, thirty years later, by M. Duruy.

It was strange enough that France, while correctly informed relative to commerce and crime, did not publish periodical statistics of the condition and progress of education. "Complete statistics of primary education," said the minister in 1831, "is a means of accelerating in France the progress of civilization. Statistical tables published at fixed dates will acquaint the French people with all the steps they have made on the road to perfection, and these tables will become for us * * * the record of popular education, which is also the chronicle of intelligence, of manners, of general well being."

The bill offered May 16, 1878, the object of which was to found a pedagogic museum and create a special bureau of statistics, proves that the government of the Republic is aware of the necessity of supplying this want, and that it is determined to create a permanent centre of pedagogic information under the direction of the minister of public instruction.²

¹Statistique de l'enseignement primaire. (1876-1877.) Tome premier. Paris, 1878.

²When, on May 16, 1878, M. Bardoux, minister of public instruction, introduced to the Chambers the bill to establish a central bureau of education at Paris, he said:

In my remarks accompanying the budget for 1878, I expressed my regret that France does not possess anything analogous to the National Bureau of Education at Washington. Gentlemen, it is just such a bureau which I now desire to establish, and for which I solicit a favorable vote of the French Assembly. The institution the establishment of which I propose will be, like the Bureau of Education at Washington, above all a centre of pedagogical and statistical information. It will have no functions to exercise other than gathering and distributing information by means of special conferences of teachers, of which it would be the headquarters. These conferences will doubtless afford a good opportunity for the improvement in their work of many zealous teachers, since they will find in the bureau many pedagogical and statistical publications, both of the bureau and of leading educators.

The bill submitted by M. Bardoux passed the Chambers, and the bureau was organized in connection with the new educational museum. The organization and direc-

We have already begun our work; during the Universal Exposition we published the statistics of secondary education for 1876. We shall

tion were first intrusted to M. Ferdinand Buisson, well known as the president of the French educational delegation to the Philadelphia Exhibition in 1876. On the appointment of this gentleman to the directorship of the section of primary education in the ministry of public instruction in 1879, M. B. Berger, one of the members of the same delegation of 1876, was appointed to succeed him. The museum is in the buildings of the former Collège Rollin, 42 rue Lhomond.

The following official report of the minister of public instruction to the President of the Republic shows what M. Jules Ferry, the present minister, has done for the French bureau of education and educational museum:

PARIS, May 13, 1879.

A very remarkable movement has made its appearance in France during the last eight years in favor of popular education, and the public powers have joined this movement by increasing the educational appropriations. It is of importance to direct this movement, and to cause to be produced at the expense of the state, the departments, and the communes all the results which must be expected from it.

Nothing is more useful in this respect than a great centre of information and research which would, under the name of educational museum, bring together official publications, plans of school-houses, school apparatus, text books, and the educational treatises which are highly recommended in France and abroad.

At the close of the Universal Exhibition of Paris the minister of public instruction received from foreign countries a quantity of school appliances which he is in honor bound to make accessible to all the friends of popular education.

By creating this permanent educational bureau, which is at the same time a school museum and a central library of primary education, France will realize, although perhaps a little late, an idea which originated here, for it was first expressed, in 1827, by one of the best disciples of Pestalozzi, M. Jullien, of Paris, in his *L'esquisse d'un ouvrage sur l'éducation comparée*, and from that time the project has been repeatedly brought up. It seemed to be on the point of realization at the Exposition in 1867, at which time another eminent educator, M. Pompée, brought the project to the front.

Various difficulties caused the postponement of the enterprise in France; but several other countries took up the idea and worked it out. Of these, England was the first. Perceiving her artistic inferiority at the Universal Exhibition of 1851, she founded the South Kensington Museum, with a view to organize instruction in drawing. A few years later she annexed an educational section, which contains at present a pedagogical library of 20,000 volumes and a rich collection of school material.

The province of Ontario has imitated the example of the mother country, and we find at Toronto, the capital of the province, a large building containing an art museum, a school library, and a magnificent collection of school appliances. This establishment is under the control of the department of public education.

It is well known how successful were the St. Petersburg Pedagogical Museum and the sketch thereof by General Kohlbowski at the Universal Exposition of 1878. This museum, which was established in 1864 with a view to be exclusively useful to the schools dependent on the ministry of war, has become an important division of the Museum of Useful Knowledge at St. Petersburg. It is divided into three sections: the first contains appliances for the military gymnasia and preparatory schools; the second, apparatus for the propagation of practical knowledge; the third, statistical works on the sanitary condition of schools.

In the United States, the great National Teachers' Association passed resolutions, in 1866, urging the establishment at Washington of a National Bureau of Education, whose duty it should be to gather and publish school statistics of the several States of the Union, to organize a collection of foreign educational documents, and to furnish useful information to all the friends of educational progress. Congress and the President of the United States received this resolution favorably, and the Bureau was opened in 1867 as a branch of the Department of the Interior. During the last nine years it has been directed with great ability by General John Eaton. The report and the circulars of information which he publishes every year form some of the most important documents for the contemporary history of public instruction.

The Exhibition at Vienna, in 1873, suggested to several of the European states the establishment of similar institutions. In Italy, for example, Mr. Bonghi, delegate to the Vienna Exhibition, member of the international jury, and soon afterwards minister of public instruction, caused an educational museum to be established at Rome in 1875. It was suspended after Mr. Bonghi left the ministry, but in 1878 it was definitely established.

publish shortly after the close of the Exposition the statistics of superior education and the first volume of the statistics of primary education.

Austria, which on the close of the Exhibition of 1873, had imitated England by creating the Imperial Museum of Industrial Arts, established, besides, a large educational museum, which three years later, at Philadelphia, gave the best idea of its rich collections. Hungary possesses an educational museum at Buda-Pesth; in 1876 this museum contained over 5,000 objects. The educational museums of several large cities in Germany have been arranged after the model of the museum at Vienna. In Switzerland the educational museum of Zürich has increased so rapidly that in 1878 a large building had to be provided. Netherlands inaugurated an educational museum at Amsterdam in December, 1878. It has a rich and varied collection. Finally we see the city of Brussels, in concert with the Educational League, establishing a central educational museum, which, besides its rich collections, offers to the public reading rooms, conferences, and public lectures.

We do not need so many examples to show our country the possibility and the usefulness of a creation which has been so long deferred. As long ago as July 1, 1871, Jules Simon took the initiative by a decree authorizing the establishment of an educational museum where books, charts, and appliances for schools, asylums, and all schools, both French and foreign, were to be exhibited. Consequently, regulations were issued and a commission appointed (May 15, 1872) to examine objects to be admitted. Among the members of this commission we notice the names of MM. Bardoux, Charton, de Salvandy, Lefébure, La Caze, Calmon, Hérold. An honorary director general, M. Rapet, was charged with the direction of the establishment.

A circular letter of December 14, 1872, renewed May 4 and August 6, 1873, informed the rectors of the creation of a school museum, inviting them to have a list prepared retaining the titles of all written and printed documents issued in relation to primary education before and after the year 1879. This list was to be the basis of the catalogue of the future general educational library of primary instruction.

Unfortunately the building of the ministry, where all the sections were pretty crowded, could not offer suitable space, and it was thought best to place the museum in the building occupied by the Museum of the City of Paris. The inauguration ceremony took place March 2, 1873. But soon afterwards, May 24, the work was indefinitely postponed for want of a suitable building. The idea abandoned by the administration was taken up again and recommended to the budget commission by M. Bardoux, reporter of the budget of public instruction, who in 1876 expressed his regret that France did not possess anything analogous to the National Bureau of Education at Washington. As minister of public instruction, my honored predecessor (M. Bardoux) submitted May 16, 1878, a project of law creating in the ministry of public instruction a national museum of primary education, comprising a permanent statistical bureau, a French and foreign educational library, and a permanent and public museum of school appliances. The project, preceded by a remarkable "exposé des motifs," was referred, at the request of the minister, to the general commission of primary instruction. This commission favored the principle unanimously, but did not think it well to make it the object of a law, and consequently advised the minister to create the museum by decree. At this time we were holding the Universal Exposition; it was important not to let the rich educational exhibits of foreign countries depart from here without trying to retain by means of exchange or purchase a considerable part of them. M. Bardoux, who did not lose sight of this interesting matter, negotiated with the president and the questors of the Chamber of Deputies for a few months in the Palais Bourbon, previously occupied by the international jury. Thanks to the realization of this plan, my administration has been able, if not to classify, at least to collect a considerable number of objects, which have been presented to us or handed over in exchange for our school appliances by different foreign countries. It thus only remains for me to complete the work of my honored predecessor, and I feel this necessity so much the more as the different advisory commissions are unanimous in asking me to organize a museum, a library, and historical, statistical, and pedagogical archives, which would furnish them complete information on the various subjects submitted to their deliberation. These commissions will be the council of the administration, and the museum will, according to M. Bardoux, render the same service to the primary institutions of learning as is rendered to technical education by the Conservatory of Arts and Trades.

It is with this conviction that I request you, Mr. President, to place this useful establishment by decree in the list of public institutions provided for in the budget and installed in government buildings.

Receive, &c.,

JULES FERRY,

Minister of Public Instruction and Fine Arts.

The suggestion of the minister contained in the above report that the educational museum should be made a government institution was at once approved by an official vote of President Grévy.

The very nature of this subject and the care which our colaborers have bestowed upon this work have rendered the task of preparing this volume (the first volume of the statistics of primary education) difficult and long; we wished, however, that it should be published before the close of the year (1878), so as to make the date of this work on primary education in France coincide with the date of similar works prepared by other governments for the (Paris) Exposition, and thus facilitate and make more conclusive the recapitulation and comparison which will make part of the second volume.

In taking up again the practice established forty-five years ago, we are glad to have been able to profit by the experience of our predecessors, and thus to improve the statistical tables of primary education and to give more precision to the results. It is a delicate matter; it is not so easy as is generally imagined to ascertain the number of pupils in a school and their exact attendance; appearances are often deceitful, and the errors which lead to erroneous conclusions may strengthen misapprehensions already existing. That is not what we are aiming at; we want to be enlightened ourselves and to enlighten others; we want to know, as far as our means of investigation reach, the true condition of affairs, no matter whether good or bad, and we want to publish it with sincerity. It is our firm conviction that we cannot administer well what we do not know well. In studying such a considerable mass of facts as those relative to primary education in France, the only means to arrive at a clear understanding is to consult the statistics prepared after an intelligent plan, executed by competent men, and carefully verified and analyzed in its different parts.

The statistical commission¹ organized in the section of the director of primary education since the beginning of 1876 was animated by the same sentiment. I venture to say that the commission has proved fully equal to its task. Without other ambition than that of exactness, the commission has worked long to lay down the basis of regular statistics. It gives me pleasure to say, in justice to the members of the commission, that they have shown a zeal worthy of commendation in the fulfilment of this task, which was not without difficulty, and that several members have proved by the manner in which they have accomplished it or by the remarks which they have added to their tables that they perfectly understand the importance of such an investigation and the necessity of rigorous accuracy in attaining the aim proposed.

¹ This commission was composed of MM. E. Levasseur, member of the Institute, president; Maurice Block; A. Bontan, director of primary education in the ministry of public instruction; O. Gréard, member of the Institute, director of primary education for the department of the Seine; J.-J. Rapet, honorary inspector general of primary instruction; E. de Resbecq, under director of primary education; F. Buisson, secretary.

The statistics which we publish are the result of these efforts. The commission laid down three series of questions: What are the wants of the country in regard to primary education? What are its resources? What use does the population make of them? That is to say, How many children of school age are there in France? What is the number of schools and teachers? How many pupils attend school? The tables answer these questions. They are preceded by a general résumé, which is divided, like the tables themselves, into eight sections, and in which we consider not only the school population, the educational resources, the number of pupils on the rolls and the number in attendance, but also the accessory resources, as the courses for adults, the school libraries, the statistics of certificated teachers, the number of normal schools and normal courses, and finally the budget of primary education. At the time when the last general census was taken, December, 1876, the number of children between 6 and 13 was 4,502,894 (2,278,295 boys and 2,224,599 girls). The children of school age form a little more than one-eighth of the total population of France, and these constitute the young generation which the country must educate. This school population is not equally distributed in the French territory, and it is not everywhere in the same proportion with the number of inhabitants. There are in proportion more children in the country than in the cities: 61 per cent. in the former and 39 per cent. in the latter. There are regions, such as Brittany and the central districts of France, where the number of children is relatively large; there are other regions where the sparseness of the population, corresponding always with the mediocre financial resources of an extensive territory, compels the children to walk long distances in going to school; and there are still others where the nature of the country renders communication difficult. The problem presented is not the same for all the communes of France. In order to understand the true proportion of the efforts made and the results obtained, it is of importance to ascertain the diversity of conditions. We have done this in regard to the distribution of the population as far as the details of the statistics enabled us to do so. For the education of 4,502,894 children in 1876-77, we had 71,547 primary schools of all kinds. Of this number, 9,352 were free, but all the public schools, and even a large number of private schools, admit besides the paying pupils a number of children free. Of the 71,547 schools, 25,418 were for boys, 29,126 for girls, and 17,003 mixed. The number of schools under lay teachers was 51,657, 38,149 for boys or for both sexes and 13,508 for girls.

The number of the schools in small villages deserves attention; it amounts to 3,142; it has increased during the last few years, because it has been better understood that in regions which are less favored by means of communication or population regular attendance at school could only be obtained by bringing the school within easy reach of the pupil.

Equally interesting is the table which indicates the number of school-

houses in 1875-'76 in an unsatisfactory condition (34,108) and the number of school buildings needed (17,641). If the law of June 1, 1878, relative to the establishment of a fund for the construction of school-houses needed any justification, these figures would amply furnish it.

The teaching corps of public and private schools of all kinds reaches 110,709, more than one-half the total number (58,992) being women. But in the public schools the women are in the minority, there being only 33,663 to 46,400 men.

The lay schools employ 64,025 persons, 42,249 men and 21,776 women; the religious schools, 46,684, 9,468 men and 37,216 women. While only 28 out of every 100 schools are under the control of religious teachers, we find that 42 per cent. of all the male and female teachers in France are religious persons. This difference will be understood when we consider that the majority of lay schools have but one class and employ only one teacher, while the religious schools very often employ two or more teachers.

The number of certificated teachers is 68,997, 40,171 male lay teachers and 19,325 female lay teachers, 3,768 male religious teachers and 5,733 female religious teachers. It will be perceived from the figures given above that there are 41,712 persons engaged in teaching without certificates of qualification.

The total number of pupils of different ages enrolled during some part of the school year 1876-'77 in public and private primary schools is 4,716,935, 2,400,882 boys and 2,316,053 girls. Of this number, 3,742,376 (1,907,027 boys and 1,835,349 girls) were of school age (6-13). But to this number should be added 64,155 children from 6 to 7 years of age who are admitted to the infant schools and 71,620 boys above 13 years who attend secondary schools. There are thus 3,878,151 children between 6 and 13 who attend some institution of learning. Besides these, we ought to add the number of children who receive instruction in special schools under the jurisdiction of other ministries, or at home, the number in both of which classes cannot be ascertained.

Whatever these numbers may be, we find, by comparing the number of children as given in the census of 1876 with the total number of children enrolled in schools under the jurisdiction of the ministry of public instruction, that 624,743 children between 6 and 13, viz, 270,680 boys and 354,063 girls, have not been at school during the year 1876-'77.

Are all these children deprived of education? Certainly not. Among the school population there is always a certain number of children who go to school late, after their seventh year, and there is still a larger number who leave school for good before they are 14, ordinarily after their first communion. These children have received some instruction, but it is to be regretted that they do not devote the whole period of school age to education, and that they acquire only superficial knowledge during their limited attendance at school. By ascertaining the attendance we know what value is attached to education and what benefits the

children derive from it. We cannot ascertain with certainty the average attendance for the whole country; we must form an idea of the whole by studying the details of the statistics, and we therefore indicate the attendance by months and departments.

In December and January the attendance in most departments rose to more than 90 per cent. of the enrolment of the whole year, and in the rural districts of some departments it fell off to 60 per cent. in the months of July and August.

Since it is our conviction that the data and the results of the great problem of popular education cannot be presented in too clear a form, we have added to the tables a certain number of diagrams, which illustrate graphically a series of facts and their relations to one another, and statistical charts showing the mode of grouping the same facts according to territory.

Such is the résumé of data which are laid down in the first volume of the statistics of primary education. They are of such a nature as to give new encouragement to our efforts and to strengthen our hope in the success of the work to which the Republic attaches the highest and most legitimate importance. The Republic, better than any other government, has understood that its first duty is to lift up the democracy. To fulfil this duty it was of importance to know the exact condition of affairs and to fix a starting point which will enable us to measure the progress of the future. This we have done. The appropriations made by the Chambers are a proof of the harmony of the public powers whenever the question of developing primary education is broached. The Universal Exposition has just sanctioned the progress accomplished by our teachers since 1867. The rewards already obtained can only act as a stimulus. We see now what remains to be done. The task is heavy. But public opinion is with those who take an ardent interest in this great cause — the triumph is assured.

REPORT OF THE STATISTICAL COMMISSION.¹

REMARKS.

The statistical commission organized in the section of primary education in the ministry of public instruction has the honor to submit a brief account of its work. As this is the first report, the commission has to state the object for which it has been organized, and it must set forth what means it has employed to accomplish its task.

I. Primary education embraces such a large number of establishments, teachers, and pupils in various circumstances that it is impossible to understand the whole and to form a correct idea of its condition, its wants, its progress, or its deficiencies without the aid of statistics.

This has been understood in France. The governments and the min-

¹MM. E. Levasseur (president), Maurice Block, A. Bontan, O. Gréard, J.-J. Rapet, E. de Rebecq, and F. Buisson.

isters who have taken most interest in primary education are also those who have directed their attention to the preparation of its statistics.

A year after the July revolution M. de Montalivet, minister of public instruction, presented to the King his first report on the condition of primary education, and he proposed the regular publication of triennial statistics.

This proposition was approved and six reports were printed, viz, in 1833, 1834, 1838, 1841, 1845, and in January, 1848. The first two reports had for their author M. Guizot, who had the honor of attaching his name to the fundamental law of primary education in France, and the last one, which had been prepared by M. de Salvandy, was not printed in full in consequence of the events of the year 1848. The republic, however, continued the work; a seventh report was prepared in 1850, but political events again prevented its publication.

Although the administration continued from this period to collect every year statistics for its own use, it did not publish any reports during fourteen years. As soon as M. Duruy had entered the ministry he undertook to prepare complete statistics of primary, secondary, and superior education. The statistics of primary education fill several volumes and present, among other documents, the condition of education on the 1st day of January, 1864, and on the same day in 1867; it is the most extensive work on this subject which has been published in France; it proves in a high degree what zeal this minister has displayed for the advancement of education.

After his departure, complete silence again.

The international statistical congress, held at the Hague in 1869, decided that volumes of comparative statistics, relating each to one of the branches of public affairs or social life, should be prepared under the auspices of the congress by the official statistical bureaus, the directors of which should take upon themselves the responsibility of the work. This is a great enterprise. Only a few volumes have appeared up to the present date, but they are sufficient to indicate the interest such a work must possess for the international study of politics and social science. The statistics of education were assigned to Austria and intrusted to Mr. Ficker, president of the central statistical commission of Austria. This learned gentleman wished to avail himself of the Universal Exhibition of Vienna in 1873 to prepare statistical blanks and to request the different governments to fill them out, so that they might be exhibited at Vienna and be used afterwards for the preparation of international statistics. But the time was too short, and few nations were able to comply with this request. Several states and cities, which had not finished their statistics in 1873, published them later. To this number belongs the city of Paris, which, in 1875, had accurate and complete statistics prepared by M. Gréard.¹ Under the ministry of M. Jules

¹ L'instruction primaire à Paris et dans les communes du département de la Seine en 1875, par M. Gréard.

Simon, in 1872, the French government resumed the former practice and prepared educational statistics, which were, however, not considered complete enough to be published. The two official reports published in France after the Vienna Exhibition, by MM. E. Levasseur and F. Buisson, insisted on the necessity of preparing regular educational statistics in France. We find therein the following passage: "It is doubtless not less useful in a civilized country to be able to form an idea of the condition and progress of education than of movements of commerce and the number of sentences for crime. Nevertheless, we have in France every year the latter information, while we do not possess the former."

This was also the opinion of M. Boutan, director of primary education. If good educational statistics are always necessary, they are especially called for under a republican government, which, earnestly concerning itself with the development of education in general and especially of popular education, needs information respecting both details and general features as well as an account of the successive changes in educational affairs, that it may act with safety. It is not only necessary that the administration be enlightened, but that it should enlighten public opinion, and should furnish to the deliberating powers such data as are necessary for the preparation and discussion of reforms. The recent work of the commissions of the Chamber of Deputies will suffice to give a striking proof of this assertion.

On the proposition of the director of primary education, the statistical commission was organized under the ministry of M. Wallon by decree of March 15, 1876, and was composed of MM. Levasseur, member of the Institute, president; Maurice Block, statistician; J.-J. Rapet, honorary inspector general of primary instruction; A. Boutan, director of primary education in the ministry of public instruction; O. Gréard, director of primary education for the department of the Seine; E. de Resbecq, under director of primary education in the ministry; F. Buisson, late inspector of primary schools, secretary.

At the first meeting the director stated in the name of the minister what motives had induced him to appoint the commission. The minister, struck with the inconvenience caused by the publication of disconnected school statistics at long intervals, determined to inquire into the conditions and to lay the basis of permanent statistics of primary education. He invited the commission to present to him, after a careful examination, a summary report on the means to secure gradually a uniform method that would facilitate comparison and insure that certainty in results which public opinion now expects from works of this kind.

Complying with the desire of the administration, the commission immediately commenced the study of this complex question, to which it intended to devote several months, before submitting a report to the minister. A few meetings only had been given to the subject, when the decree announcing the opening of the Universal Exposition at Paris in 1878 compelled the commission to modify the programme of its work.

It became necessary to prepare school statistics without delay, so that their publication might coincide, as much as possible, with the date of the Exposition. This was a new task, more restricted and pressing; it was necessary to take up the practical part without delay and to prepare schedules, introducing in the new schedules only such improvements as the commission considered at once essential and susceptible of immediate realization.

Although precautions were taken to change as little as possible the schedules hitherto used in the annual reports, the commission did not overlook the difficulties which teachers and inspectors would encounter in a work conceived in part on a new basis. And as hurried statistics are liable to be very imperfect, the commission requested the administration to have the way prepared for a complete work by ordering the immediate preparation of a first sketch of statistics for the year 1875-'76. This work was accomplished during the period from August to November, 1876. The result of it was twofold: first, it familiarized the personnel engaged in the work with some of the principal dispositions of the new statistics; and, secondly, it furnished the commission a great many detailed observations made by the inspectors, who indicated the parts which had been best understood, as well as those which needed further explanation, and, finally, those which had to be entirely omitted for the present.

After having collected and discussed the preparatory information, the commission arranged the schedules for the statistics of the school year 1876-'77. These schedules have been submitted to one of your predecessors, and, with his approval, have been used in preparing the present work.

II. The statistics of primary education must, above all, answer the following questions: (1) What, from the standpoint of popular education, are the needs of the country? (2) What measures are taken to supply these needs? (3) What use does the population make of the means of instruction placed at its disposal?

In other words, the statistics must determine the number of children to be educated, the number of schools and classes which are at their disposal, the number of children who take advantage of the means of instruction offered them; and it has to facilitate the comparison of the results. This is the problem to be solved, and such the plan on which the commission proposes to work.

The comparison of these three groups of facts constitutes the principal usefulness of school statistics, and as it shows the true condition of national education at present, it informs the country what it still has to accomplish.

GENERAL RÉSUMÉ OF STATISTICS OF PRIMARY INSTRUCTION FOR THE SCHOOL YEAR 1876-77.

SCHOOL POPULATION.

The total population of France at the last census, December, 1876, was 36,905,788. The number of children between 6 and 13 was 4,502,894 (2,278,295 boys and 2,224,599 girls). There are thus about twelve (12.20) children of school age (6-13) to every 100 inhabitants, or one child to about eight inhabitants (8.19). In rural districts (communes of less than 2,000 inhabitants) the proportion is a little higher than in cities (communes of more than 2,000 inhabitants). In the former the average number of children is 12.67, while in the latter it is only 11.53; but if the rural districts are taken separately the number of the children of school age is more than 12.67 to every 100 inhabitants. In the department of Haute-Savoie it is 15.01, in Nièvre 15.04, in Lozère 15.72, and it exceeds 14 in twelve other departments. The number of boys is larger than that of girls in all but thirteen departments.

MEANS OF EDUCATION OFFERED TO THE POPULATION.

Schools, classes, and teachers.—France possesses 59,021 public schools, 1,746 subsidized private schools used as public communal schools, and 10,780 entirely private schools. There are thus 71,547 public and private primary schools, or one school to 515 inhabitants. Of the 59,021 public schools, 55,879 are ordinary communal schools and 3,142 village schools; 2,456 of the latter are for both sexes and 2,849 directed by lay teachers. Of the 59,021 public schools, 45,816 are under lay and 13,205 under religious teachers (priests, brothers, and sisters), or 78 per cent. are directed by lay and 22 per cent. by religious teachers. Of the 59,021 public schools, 49,669 charge for tuition, and admit only the children of poor parents free; 9,352, or barely 16 per cent., are entirely free. The proportion of free schools under religious teachers is much larger than the proportion among lay teachers: 31 per cent. of the schools under religious teachers are free, while only 19 per cent. of the lay schools instruct gratuitously. The department of the Seine has free schools only; in the department of Bouches-du-Rhône, 296 of the 375 schools are free; in Doubs, 508 out of 932; and in Hérault, 304 out of 574 schools are free.

Of the 59,021 public schools, 23,381 are for boys, 19,257 for girls, and 16,383 for both sexes. Of the subsidized private schools used as public communal schools, 87 are schools for boys, 91 for boys and girls, and 1,568 for girls.

Of the 10,780 entirely private schools, 1,950 are for boys (1,323 under lay and 627 under religious teachers), 8,301 for girls (3,906 under lay and 4,395 under religious teachers), and 529 for both sexes (354 under lay and 175 under religious teachers). Of the 10,780 private schools,

1,528 are free schools. From the foregoing it appears that of all the primary schools in France 82.49 per cent. are public, 2.44 per cent. subsidized private schools used as public communal schools, and 15.07 per cent. entirely private schools. Of the 60,767 public and subsidized private schools, 59,267, or 97.53 per cent., are Catholic; 999, or 1.65 per cent., Protestant; 18, or 0.03 per cent., Jewish; and 483, or 0.79 per cent., undenominational.

The 59,021 public schools have 78,276 classes. The 45,816 lay schools have only 52,993 classes. The 13,205 religious schools have 25,283 classes, or, the lay schools have an average of only one class, while the religious schools have almost two.

Condition of school-houses.—According to a report of 1875-'76, there were 34,108 school-houses where improvements were desirable, and the erection of 17,641 buildings was recommended; 27,958 schools had gardens. There were still 3,543 classes in which the number of pupils exceeded 80.

The teaching corps.—The total number of teachers of public primary schools was 80,063 in August, 1877, 46,400 males and 33,663 females. Of the 46,400 public male teachers, 39,533 are lay and 6,867 religious persons, and of the 33,663 public female teachers, 13,707 are lay and 19,956 religious persons.

France has 78,276 classes and 80,063 teachers in public primary schools. There are thus 1,787 more teachers than classes.

The total number of all public and private teachers in France is 110,709, 51,717 males and 58,992 females. The lay teachers number 64,025, 42,249 males and 21,776 females. The religious teachers number 46,684, 9,468 males and 37,216 females. More than one-half of all the primary school teachers in France are females, but in the public schools alone the proportion of females is only 42 per cent.

Classification of teachers.—The teachers are divided into regular teachers (*instituteurs et institutrices titulaires*) and assistant teachers (*instituteurs et institutrices adjoints*); further, into certificated teachers and uncertificated teachers. Of the 110,709 teachers, 69,095 are regular and 41,614 assistant teachers. Of the 110,709 teachers, 68,997, or 62 per cent., are certificated teachers, and 41,712, or 38 per cent., are uncertificated. Of 37,216 female religious teachers, only 5,733, or 15 per cent., are certificated; of 21,776 female lay teachers, 19,325, or 88 per cent., are certificated; of the 9,468 male religious teachers, 3,768, or 39 per cent., and of the 42,249 male lay teachers, 40,171, or 95 per cent., are certificated.

From the above it results that France has for every 10,000 inhabitants 16 public schools, 21 public classes, 12 public male and 9 public female teachers; of all kinds, there are 19 schools, 29 classes, 14 male and 19 female teachers to every 10,000 inhabitants. In the rural districts there are 23 public schools and 26 classes and in the cities 6 public schools and 14 classes to every 10,000 inhabitants.

As the number of communes in France is 36,056, and the number of communes provided with schools was 35,744 in 1876-'77, there were 312 communes without schools.

The girls' schools are still very defective. Of the 19,559 communes of more than 500 inhabitants which, according to the law of 1867, are bound to establish special schools for girls, there are still 1,878 communes which have not fulfilled this obligation, and 2,296 communes have only private schools.

Infant schools (salles d'asile).—There are infant schools in 3,042 communes. The total number of these institutions was 4,147 in 1877, 2,785 public and 1,362 private; 838 were under lay and 3,309 under religious teachers; 1,908 charge for tuition and 2,239 are free schools.

From the above it appears that there are about 3 infant schools to 1,000 children between 4 and 6. Nine-tenths of these institutions are in the cities. The infant schools are under the control of 6,223 female teachers, 1,176 lay and 5,047 religious. The total number of children in the public and private infant schools is 532,077, 260,159 boys and 271,918 girls.

NUMBER OF PUPILS ON THE ROLLS IN THE DIFFERENT PRIMARY SCHOOLS.

The total number of pupils on the rolls of the public schools for the year 1876-'77 was 3,823,348, 2,197,652 boys and 1,625,696 girls. In the subsidized private schools the number of pupils on the rolls was 142,134, 15,302 boys and 126,832 girls. In the unsubsidized private schools the rolls showed 751,453 pupils, 187,228 boys and 563,595 girls. The total number of children on the rolls of the public and private primary schools was thus 4,716,935, 2,400,882 boys and 2,316,053 girls.

As the school population (6-13) is 4,502,894 according to the last census, there are 214,041 children more on the rolls than the number of children of school age. Nearly one-half of all the children in all the primary schools of France receive gratuitous instruction.

SCHOOL ATTENDANCE.

The following table shows the attendance at schools in the different departments of France :

Table showing the proportion of children in attendance to 10,000 inhabitants in the different departments in the school year 1876-77.

No.	Departments. ¹	Number of pupils to every 10,000 inhabitants.	No.	Departments. ¹	Number of pupils to every 10,000 inhabitants.
1	Savoie	1,398	45	Haute-Loire	997
2	Haute-Savoie	1,298	46	Hautes-Pyrénées	986
3	Doubs	1,295	47	Seine-et Oise	984
4	Hautes-Alpes	1,291	48	Drôme	971
5	Haute-Saône	1,283	49	Calvados	969
6	Lozère	1,273	50	Gard	964
7	Vosges	1,263	51	Ariège	963
8	Jura	1,257	52	Basses-Pyrénées	959
9	Cantal	1,231	53	Cher	957
10	Saône-et-Loire	1,215	54	Aude	953
11	Aveyron	1,209	55	Vienne	948
12	Pas-de-Calais	1,201	56	Corse	947
13	Yonne	1,180	57	Aube	941
14	Haut-Rhin (Belfort)	1,146	58	Tarn	936
15	Nièvre	1,124	59	Mayenne	935
16	Haute-Marne	1,120	60	Puy-de-Dôme	933
17	Côte-d'Or	1,102	61	Haute-Garonne	917
18	Meuse	1,101	62	Indre	915
19	Nord	1,100	63	Maine-et-Loire	905
20	Ardeennes	1,095	64	Tarn-et-Garonne	904
21	Seine-Inférieure	1,094	65	Bouches-du-Rhône	903
22	Oise	1,093	66	Côtes-du-Nord	902
23	Isère	1,093	67	Rhône	895
24	Meurthe-et-Moselle	1,082	68	Vauchuse	893
25	Ain	1,077	69	Loire-Inférieure	889
26	Vendée	1,073	70	Orne	881
27	Hérault	1,068	71	Corrèze	870
28	Allier	1,068	72	Gironde	869
29	Loiret	1,044	73	Alpes-Maritimes	865
30	Creuse	1,040	74	Sarthe	845
31	Loire	1,034	75	Gers	839
32	Aisne	1,032	76	Eure	826
33	Lot	1,031	77	Dordogne	824
34	Seine-et-Marne	1,027	78	Lot-et-Garonne	817
35	Deux-Sèvres	1,024	79	Indre-et-Loire	816
36	Pyrénées-Orientales	1,023	80	Charente	806
37	Marne	1,011	81	Var	804
38	Ille-et-Vilaine	1,009	82	Landes	796
39	Somme	1,008	83	Haute-Vienne	795
40	Loir-et-Cher	1,007	84	Charente-Inférieure	787
41	Eure-et-Loir	1,007	85	Seine	785
42	Manche	1,005	86	Finistère	757
43	Basses-Alpes	1,005	87	Morbihan	751
44	Ardèche	1,004			

¹ In this list the departments are arranged according to the highest number of pupils in attendance.

ADULT SCHOOLS.

In 1876-77 there were 22,133 courses for men and 5,284 for women. There were, besides, 423 musical courses, giving instruction to 10,958 men and 491 women. The number of men attending the adult schools was 500,043, and the number of women 105,510.

Of these adult pupils, 8,079 men and 2,120 women left the schools absolutely illiterate; 10,275 men and 3,424 women learned to read and 10,813 men and 3,161 women learned to read and write. All the other pupils increased their elementary knowledge, either in language, arithmetic, history, or geography.

The courses of drawing were attended by 21,547 men and 566 women, the courses of geometry and surveying by 76,627 men and 574 women, the courses of book-keeping and commercial arithmetic by 36,295 men and 2,685 women, the courses of physical sciences by 8,428 men and 368 women, the courses of history and geography by 91,869 men and 8,645 women.

SCHOOL LIBRARIES.

In 1877 there were 19,234 communal school libraries in France, with 1,943,688 volumes. Their income from various sources amounted to 245,069 francs (\$47,298) in 1877. During the year these libraries circulated 1,337,156 volumes, many of these, however, being text books lent to indigent pupils in the public schools.

PROFESSIONAL TRAINING OF TEACHERS.

In 1877 France had 79 normal schools for men. Of this number, 65 date from the organization period of 1830-1837 and 14 have been established from 1849 to 1875. These 79 institutions had, in 1877, 79 directors, 847 professors and assistants, and 3,587 pupils in 3 years' courses. The annual cost per pupil amounts to about 575 francs.

The number of normal schools for women was 18 in 1877. Of this number 9 have been founded since 1872. The 18 institutions had, in 1877, 18 lady principals, 121 teachers, and 715 pupils.

There were 62 normal courses for female candidates in 1877. The number of pupils was 1,385. There is no provision in the school laws relative to normal courses; they are attached to private schools and prepare for the examinations for diplomas of capacity. The course of study lasts ordinarily two years. For male candidates there are very few normal courses, of which there are 5 for Protestants. The normal courses are generally subsidized by the state or department, or by both.

In 1875, of the 1,001 male candidates presented for examination 952 received diplomas; in 1876, 968 out of 1,035; and in 1877, 1,084 out of 1,091. The female candidates presented in 1876 numbered 154 and in 1877 186, all of whom received diplomas.

COST OF PRIMARY EDUCATION.

The ordinary and extraordinary expenditure in 1876 amounted to 83,078,734 francs, which is 2.25 francs per capita of the whole population and 21.50 francs a year per pupil.

II.

Following is an abstract of the report on primary instruction from 1829 to 1877,¹ the introduction being an extract from the letter of M. Jules Ferry, minister of public instruction, to the President of the Republic :

INTRODUCTION.

MONSIEUR LE PRÉSIDENT : By creating in the ministry of public instruction a permanent commission of primary school statistics my honorable predecessor, M. Waddington, sought to give to the unprecedented educational movement which has manifested itself during the last nine years, both in the Chambers and in the nation, the benefits of a precise, methodical, sincere, and scientific investigation, showing at regular intervals the progress achieved and indicating what has still to be accomplished.

This commission, composed of the most competent men and headed by M. Levasseur, of the Institute, a distinguished economist and statistician, published in 1878 the statistics of primary education for the year 1876-'77. This remarkable document is to serve as the type of future statistics.

The commission wanted at the same time to make a survey of the past by summarizing the data of numerous statistics published by the ministry of public instruction. The first official report bears the date of 1829; the first statistics of both boys' and girls' schools were only published in 1837. We are thus enabled to see what has been accomplished in 40 years at least. This work, covering nearly half a century, is immense.

From 1837 to 1877 the number of pupils of primary schools has increased 70 per cent., there being 752 pupils for every 10,000 inhabitants in 1837 and 1,281 pupils in 1877. The total number of schools has increased 36 per cent.; the public schools alone, 75 per cent. The number of girls' schools has increased fourfold in the same period. In 1837 France had 5,667 communes without any school; in 1877 this number had been reduced to 312, and in 1879 to 298. In 1827, 42 per cent. of the conscripts could read; in 1877, this number had risen to 85. In 1820 only 34 per cent. of the women were able to sign their marriage contracts; at present 70 per cent. are able to sign. From 1871 to 1877 the ordinary expenses for primary schools have increased 34 per cent. The state grant, which was 8,620,000 francs in 1871, has reached 15,647,000 francs in 1878, and in 1880 it amounts to about 20,000,000 francs. The communal expenses for primary schools increased 44 per cent. from 1871 to 1877, and the departmental expenses 47 per cent. in the same period. These figures show a good will and a patriotism without precedent in our history.

¹ Statistique de l'enseignement primaire. Tome second. Statistique comparée de l'enseignement primaire. (1829-1877.) Paris, 1880.

REPORT OF THE STATISTICAL COMMISSION.

STATISTICAL REPORTS.

The first statistics of primary education in France date from the restoration.

Before this period the *Almanach de l'Université de France* sometimes published the number of institutions of learning and the number of pupils by departments or academies. The *Manuel Général*, the official journal of public instruction, also published some figures, as, for example, the proportion of pupils to the population in 1817, 1820, 1825, 1829, and 1833; but these data are too summary to be accepted as trustworthy statistics.

In 1826, Baron Charles Dupin published a chart illustrating the condition of popular education in France. This chart was the object of lively discussion; it is worth consulting, but it has not the value of an official document.

The first official statement concerning the condition of primary education in France was published in 1831 by M. de Montalivet, minister of public instruction. Under the ministry of M. Guizot, several reports were published; the most remarkable is that of 1834. Then follow the reports of M. Villemain for 1841 and 1843, and that of M. Salvandy for 1847. A later report for 1850, published in December, 1852, is incorrect. Then came several elaborate works published by M. Duruy in 1862, 1864, 1868, and 1869. After the year 1869, the publication of statistics of primary education was again interrupted. During the ministry of M. Jules Simon, a statistical report was prepared and even printed in 1873, but as it was found to be defective in some points it was withheld from the public. In March, 1876, a statistical commission was created, to which we owe the two volumes from which the present abstract has been prepared.

SCHOOL POPULATION.

The following table shows the total population of France and the number of children between 5 and 15, from 1821 to 1876:

Years.	Total population.	Children between 5 and 15.
1821	30,461,875	.....
1831	32,569,223	.....
1836	33,540,910	.....
1851	35,783,059	6,443,548
1861	37,382,225	6,508,179
1866	38,067,064	6,529,271
1876	36,905,788	6,409,087

NUMBER OF COMMUNES AND SCHOOLS FROM 1821 TO 1876-'77.

In 1821 France had, according to the *Almanach de l'Université*, 28,236 primary schools. In 1829 the number of communes was 38,135 and the total number of primary schools for boys 30,536. In 1834 the number of communes was 37,187 and the number of primary schools 33,695, 22,641 public and 11,054 private. In 1837 the number of communes was 37,234 and the number of primary schools 52,779, 34,756 public and 18,023 private. In 1850 the number of communes was 36,786 and the number of primary schools 60,579, 43,843 public and 16,736 private. In 1863 the number of communes was 37,510 and the number of primary schools 68,761, 52,445 public and 16,316 private. In 1876-'77 the number of communes was 36,056 and the number of primary schools 71,547, 60,767 public and 10,780 private.

In 1837, 5,667, or 15.2 per cent. of the communes, had no school; in 1847, 3,213, or 8.7 per cent.; in 1850, 2,690, or 7.3 per cent.; in 1861, 1,018, or 2.7 per cent.; in 1863, 818, or 2.2 per cent.; in 1865, 694, or 1.8 per cent.; in 1866, 650, or 1.7 per cent.; in 1876-'77, 312, or 0.9 per cent. In 1837 France had one school for 127 children between 5 and 15, or 78.8 schools for 10,000 children; in 1877 she had one school for 89.6 children between 5 and 15, or 111.6 schools for 10,000 children. Of the 71,547 schools in 1876-'77, 42,421 were for boys and 29,126 for girls. In 1832 there were only 10,672 schools for girls against 31,420 for boys.

In 1837, 21,695 communes, or 58.3 per cent. of the total number of communes in France, had no public schools for girls; in 1863 there were still 18,174 such communes, or 48.5 per cent., and in 1876-'77, 16,380 such communes, or 45.4 per cent. One-fourth of these communes had a population of less than 500.

The following table shows the movement of lay schools and religious schools (*écoles congréganistes*):

Years.	Total.	Lay schools.			
		Public.		Private.	
		For boys.	For girls.	For boys.	For girls.
1843	52,225	34,063	4,032	7,371	6,759
1850	50,267	33,201	4,178	4,563	8,325
1863	51,555	35,348	5,998	2,572	7,637
1865	51,806	35,560	6,399	2,864	6,983
1866	52,366	35,774	6,569	2,944	7,079
1872	51,633	35,774	8,479	2,088	5,292
1875	51,722	36,497	9,229	1,760	4,236
1876-'77	51,657	36,399	9,417	1,750	4,091

Years.	Religious schools.				
	Total.	Public.		Private.	
		For boys.	For girls.	For boys.	For girls.
1843	7,613	827	3,798	290	2,698
1850	10,312	1,227	5,237	399	3,449
1863	17,206	3,038	8,061	536	5,571
1865	17,893	3,069	8,322	646	5,856
1866	18,305	3,084	8,530	655	6,036
1872	18,546	3,078	8,982	780	5,706
1875	19,968	3,518	11,131	843	4,476
1876-77	19,890	3,365	9,840	907	5,778

TEACHERS.

The following table shows the number of male and female lay and religious teachers :

Years.	Total number of teachers.	Lay teachers.			Religious teachers.		
		Total.	Male.	Female.	Total.	Male.	Female.
1837	59,735	48,667	37,371	11,296	11,068	1,931	9,137
1840	63,409	50,802	38,368	12,434	12,607	2,136	10,471
1843	75,535	58,577	44,173	14,404	16,958	3,128	13,830
1863	108,799	61,826	40,817	21,009	46,973	8,768	38,205
1872	110,238	63,158	41,208	21,950	47,080	9,341	37,739
1876-77	110,709	64,025	42,249	21,776	46,684	9,468	37,216

Of the 59,735 teachers in 1837, 38,465 were public and 21,270 private school teachers; of the 110,709 teachers in 1876-77, 80,063 were public and 30,646 private.

NORMAL SCHOOLS.

In 1833 France had 62 normal schools for men, with 1,944 pupils; in 1863 there were 76 schools, with 3,139 pupils; and in 1876-77, 78 schools, with 3,551 pupils. For females, there were 6 normal schools in 1843; 10 schools, with 334 scholars, in 1850; 11 schools, with 440 pupils, in 1863; and 17 schools, with 691 pupils, in 1876-77.

A law was passed August 9, 1879, which requires the establishment of a female normal school in each of the 87 departments.

The expenditures for the normal schools have been as follows: For male normal schools, in 1850, 1,903,547 francs; in 1876-77, 3,393,420 francs. For female normal schools, in 1850, 124,091 francs; in 1876-77, 508,702 francs.

TEACHERS' MUTUAL AID SOCIETIES.

All the departments except 9 have teachers' aid societies. The first teachers' mutual aid society was established in the department of Yonne in 1844, the second in the department of the Seine in 1846. In 1863 only 18 departments had mutual aid societies; the remaining 55 have been established from 1863 to 1870. The minimum of the annual fee is 5 francs, the maximum 24 francs. On the 1st of January, 1879, the capital of these societies amounted to 2,374,340 francs.

PUPILS.

The following table shows the number of pupils from 1829 to 1876-77:

Years.	Number of pupils.			Number of pupils in public schools.	Number of pupils in private schools.	Number of pupils in day schools.	Number of pupils in schools.
	Total.	Boys.	Girls.				
1829.....	1,357,934	969,340	388,594				
1832.....	1,937,582	1,202,673	734,909				
1833.....	1,654,828			1,289,230	365,598		
1837.....	2,690,035	1,579,888	1,110,147	2,046,455	643,580		
1840.....	2,896,934	1,656,662	1,240,272	2,216,767	680,167		
1843.....	3,164,297	1,812,709	1,351,588	2,407,425	756,872	2,457,380	706,917
1847.....	3,530,135	2,176,079	1,354,056				
1850.....	3,322,423	1,793,667	1,528,756	2,601,619	720,804	2,368,627	953,796
1851.....	4,286,641					2,744,667	1,541,974
1863.....	4,336,368	2,265,756	2,070,612	3,413,830	922,538	2,725,694	1,610,674
1865.....	4,436,470	2,306,792	2,129,678	3,477,542	958,928	2,763,524	1,672,946
1866.....	4,515,967	2,343,781	2,172,186	3,537,709	978,258	2,820,670	1,695,297
1872.....	4,722,754	2,445,216	2,277,538	3,835,991	886,763		
1875.....	4,809,728	2,450,683	2,359,045	4,049,953	759,775	2,938,709	1,871,019
1876-77...	4,716,935	2,400,882	2,316,053	3,823,348	893,587	2,648,562	2,068,373

SALLES D'ASILE.

The salles d'asile (infant schools) are especially for children of the working people, whose occupations call them away from home during the day. They have been considerably improved during the last few years, so that they are now giving a good preparation for the primary school.

In 1837 there were only 251 salles d'asile, with 29,514 pupils, while in 1876-77 there were 4,147, with 532,077.

ADULT SCHOOLS.

The French adult schools date from the first years of the eighteenth century. In 1863 there were 5,168 courses for adults: 4,986 for men and 182 for women. In 1876 the number was 27,417: 22,133 for men

and 5,284 for women. The number of pupils in 1863 was 125,647: 115,673 men and 9,974 women; in 1876-'77 the number was 605,763: 500,053 men and 105,710 women.

SCHOOL LIBRARIES.

School libraries are increasing very rapidly in France. In 1863 they numbered 8,356, with 684,344 books; in 1869 they numbered 14,395, with 1,239,165 volumes; in 1872, 14,679, with 1,349,712 volumes; in 1876-'77, 19,234, with 1,943,688 volumes; in January, 1879, 20,552, with 2,051,227 volumes; in 1880, 20,781, with 2,326,302 volumes. The pedagogic libraries numbered 1,725 in 1880, and the number of volumes, 113,997.

SCHOOL SAVINGS BANKS.

The school savings banks are not directly established by the school authorities, but they owe their origin to the initiative of the teachers and scholars. The first one dates as far back as the year 1834, and they are now found in 81 of the 87 departments. The total number of school savings banks was 10,440 in 1879, and the number of depositors 224,280. The total amount deposited was 3,602,621 francs. In 1876 there were only 8,033 school savings banks in 60 departments. The number of depositors in the same year was 177,040, and the amount deposited, 2,984,352. The progress made in 1877 and 1878 is thus very remarkable.

The French minister of public instruction has charged an eminent economist, M. de Malarce, with the task of studying the questions relating to popular and school savings banks in different countries. M. de Malarce has published the results of his investigation in a pamphlet entitled "*Manuel des caisses d'épargne scolaires en France*" (Manual of School Savings Banks in France), Paris, 1879, of which the following is an abstract:

Historical sketch.—According to a recent report of the English post office department, several European and American governments are at present improving their savings banks. They endeavor to derive benefit from the experience of other countries. We may add that the people, too, take great interest in this movement. In France, at least, both in Paris and the provinces, the people appreciate this public service very highly. We have received many ingenious suggestions from employers, laborers, directors of savings banks, and school teachers. They also ask us questions which will be answered here, in order that our replies may be accessible to many readers.

We are asked how penny banks can be established, and how these banks can be introduced into the school. We are further asked: Why should an institution fail in France which has succeeded so well in England and Belgium? Are our pupils not as intelligent as English or Belgian pupils, and are our teachers less capable and less devoted than their colleagues in other countries? Would it not be sufficient to

inform us what is going on at Ghent, Brussels, London, Glasgow, &c.? Did we not introduce into France the general savings banks in 1848, the *salles d'asile* in 1825, and several other useful institutions which our neighbors had established before us?

The establishment of school savings banks is originally a French idea. If the first penny bank was established at Greenock, in 1837; if school savings banks have been tried at Verona (Italy), in 1844, in Saxe-Weimar and Württemberg in 1846, in Prussia and Switzerland in 1851, in Hungary in 1860, in Belgium in 1839 and 1840, we are able to state that France has had a school savings bank since 1834. M. Dulac, a teacher of Mans, has had a savings bank in his school from May 4, 1834, to 1870. From 1836 to 1840 attempts to establish school savings banks were made at Amiens, Grenoble, Lyons, Paris, &c. In 1840 M. Rapet established a school savings bank at Périgueux.

The following is an account of the method employed by M. F. Laurent, the founder of school savings banks in Belgium:

In the fall of 1866, towards the close of the midsummer holidays, M. Laurent, professor of civil law at the University of Ghent, called a meeting of some of the directors of the city schools. He said that saving must be taught, like any other virtue, by causing it to be practised. Children are the best agents of social reform. The future laborers must learn the great importance of small savings. While small savings are of great value to all the children, they are especially so to the children of the poor, who see more pennies than larger coins, and for whom the habit of saving will be the only means of success in later years.

M. Laurent thoroughly explained his plan to the directors, and then went from school to school to give the children lessons of economy. In October, 1866, two communal schools of Ghent had each a savings bank, and, thanks to the encouragement on the part of the communal council, the city school commission, and two liberal societies, savings banks have been introduced into all the city schools. Of the 45,000 pupils of these schools more than 13,000 have deposits exceeding one franc.

From Ghent the savings banks spread over the whole country, and they were later introduced in Germany, Holland, England, and Italy. The following method was employed in France by M. de Malarce:

After having made arrangements with the nearest savings bank, the director of the school informs his pupils that he is ready to receive their small savings (the amount of a single deposit must not exceed 5 francs, as larger deposits would be incompatible with the name of penny bank), and that as soon as the deposits amount to 1 franc he will transfer them to the regular savings bank and the scholar will receive a bank book.

The director fixes a day when, in each week, at the beginning of the school, deposits will be received. He has before him a register of the school savings bank, in which he enters the names of depositors and

the amounts deposited. Each pupil keeps a duplicate account on a single sheet of paper, with sufficient columns for the whole school year. Sometimes the register and the blanks for duplicate accounts are furnished free of charge by the savings banks, and in some cases the teachers have them prepared by the pupils themselves, as this is an excellent exercise in writing and simple book-keeping.

This is the simple process, so far as the school room is concerned. The transactions outside the school room—the relations with the savings banks—are also very simple. At the beginning of every month the teacher adds up the deposits of every pupil, and in case they exceed 1 franc he deposits the even francs at the savings bank and keeps the amounts of less than 1 franc on the register of the school savings bank.

The bank books of the depositors are kept by the teacher as long as the pupils attend school. When a pupil leaves the school the book is handed over to his parents or guardians.

No pupil can withdraw a part or the whole of his deposit without the consent of his parents or guardians.

Legislation.—On the 4th of May, 1879, the Dutch government laid before the States General two projects of law tending to improve the system of savings banks and to place them within reach of the working classes. The first project favors the gratuitous transmission of deposits to the savings banks through the royal post offices; the second project, however, favors the establishment of a national savings bank and authorizes all the post offices of the country to receive deposits.

In 1860 Mr. Gladstone urged the establishment of a national savings bank in connection with the post offices. This idea was not new, however; it dated from 1807, when Mr. Whitbread, M. P., advocated, in an amendment to the poor law, the establishment of post office savings banks. Mr. Gladstone's plan was carried out by the act of May 27, 1861.

In 1874 Mr. Sella, together with several of his colleagues in the Italian Parliament, submitted a plan for the establishment of post office savings banks, and their project became law May 26, 1875.

In France, by a single act of our legislature, the many post offices would give our country over 12,000 savings banks. This large number of banks would help to increase the number of school savings banks. Hitherto many teachers have hesitated to introduce the system in their schools, because they have no savings banks near by in which to deposit the savings of their pupils.

From 1874 to 1879 more than 12,000 school savings banks have been established in France, and 57,000 more could be established in the near future if the post office savings banks were introduced into France.

France has at present 59,000 communal schools and 10,780 private primary schools.

Table showing number of depositors in several European countries.

Countries.	No. of depositors in savings banks.	Population.
Saxony	794,243	2,700,000
Switzerland	600,000	2,700,000
Denmark	382,747	1,900,000
Holland	123,043	3,899,527
Sweden	645,041	4,500,000
Great Britain	3,408,481	34,400,000
Prussia	2,500,528	25,700,000
France	3,100,000	37,000,000
Austria (proper)	1,423,926	20,000,000

RESULTS OF THE PRIMARY SCHOOL SYSTEM.

Average attendance.—The following table shows the average attendance in primary schools in different years from 1829 to 1876-'77:

Years.	Average attendance.		Attendance in summer on each 100 pupils present in winter.
	In winter.	In summer.	
1829	1,357,934	701,459	52
1832	1,937,582	1,114,079	57
1834	1,654,828	792,741	48
1837	2,690,035	1,531,888	57
1840	2,896,934	1,683,296	58
1843	3,164,297	1,966,694	62
1850	3,322,423	2,166,929	65
1863			
1876-'77	4,716,935	3,745,823	79

Certificates of study.—The certificates of primary education are given to pupils who, at the close of their regular course, present themselves for final examination. The following table shows how many pupils have presented themselves for examination and how many have been successful from 1872 to 1878:

Years.	No. of pupils presenting themselves for primary education certificates.		Number of pupils who have obtained certificates.		
	Boys.	Girls.	Boys.	Girls.	Total.
1872	5,146	2,447	3,572	1,586	5,158
1873	12,861	5,221	7,254	2,617	9,871
1874	16,849	6,289	11,380	4,190	15,570
1875	23,169	8,571	15,457	6,293	21,750
1876	29,315	9,813	19,271	6,884	26,155
1877	40,467	15,099	26,057	10,784	36,841
1878	43,148	18,735	27,948	12,589	40,537

The following table shows the number of illiterates according to the census of 1872 :

Population in 1872.		Number of individuals.	Percentage of the same class.	Number of individuals.	Percentage of the total population.
Unable to read or write				13,324,801	36.9
Under 6 years of age.....	{ Males	1,787,268	13.4		
	{ Females	1,752,833	13.2		
Total		3,540,101			
From 6 to 20 years of age.....	{ Males	989,342	7.4		
	{ Females	1,092,996	8.2		
Total		2,082,338			
Twenty years and over.....	{ Males	3,340,740	25.1		
	{ Females	4,361,622	32.7		
Total		7,702,362			
Could read only				3,772,603	10.5
Under 6 years of age	{ Males	148,954	3.9		
	{ Females	143,394	3.8		
Total.....		292,348			
From 6 to 20 years of age.....	{ Males	536,469	14.3		
	{ Females	636,656	16.6		
Total		1,175,125			
Twenty years and over.....	{ Males	918,037	24.6		
	{ Females	1,387,093	36.8		
Total		2,305,130			
Could read and write				18,682,749	51.7
Under 6 years of age.....	{ Males	80,345	.4		
	{ Females	71,250	.3		
Total		151,595			
From 6 to 20 years of age.....	{ Males	2,884,896	15.5		
	{ Females	2,573,201	13.8		
Total		5,458,097			
Twenty years and over.....	{ Males	7,129,376	38.2		
	{ Females	5,943,641	31.8		
Total		13,073,057			
Number of individuals whose education could not be ascertained..				322,768	.9
Total population				36,102,921	100

Education and crime.—The criminal court statistics have served as a means of ascertaining the condition of primary education, but the in-

formation derived from that source has sometimes led to false conclusions concerning the influence of education upon morals. The causes which lead man to crime are so complex that it is impossible to draw any reliable conclusion from the comparison between literates and criminals and between literate and illiterate criminals. If ignorance and vulgarity push man toward crime, violent passions, the vices of human nature, and the temptations arising from the accumulation of wealth or the agglomeration of population exert, in certain cases, a still greater influence. When we study the French criminal statistics by departments we find that crimes against the person are especially numerous in the southern sections and crimes against property especially frequent in the wealthy regions, and one is led to attribute the frequent occurrence of the former crimes to the violence of the passions and that of the latter crimes to the temptations of wealth.

The judiciary statistics furnish, however, some indications which must not be undervalued. Criminals are recruited to a large extent from the lower strata of society. If primary education were sufficiently spread it would have penetrated those lower quarters, and all criminals, like the rest of the population, would at least be able to read and write.

The following table, which has been furnished by M. Yvernès, chief of the division of statistics in the ministry of justice, shows the percentage of literate and illiterate criminals from 1828 to 1878:

Years.	Of 100 criminals—		
	Were illiterate.	Could read and write or at least read.	Had received a higher education.
1828 to 1830.....	61	37	2
1831 to 1835.....	58	39	3
1836 to 1840.....	57	40	3
1841 to 1845.....	52	45	3
1846 to 1850.....	51	46	3
1851 to 1855.....	46	50	4
1856 to 1860.....	43	52	5
1861 to 1865.....	39	56	5
1866 to 1870.....	37	59	4
1871 to 1875.....	36	61	3
1876 to 1878.....	31	65	4

It is certain, then, that the number of criminals destitute of all education is diminishing, and that, consequently, the number of literate criminals is increasing. This is a necessary consequence of the general diffusion of education in France. If education were spread, as is to be desired, all Frenchmen would at least be able to read and write and all French criminals could be counted as literates.

Education as shown by marriage statistics.—The following tables show the degree of education at different periods of persons who contracted marriage:

Periods.	Percentage of persons who were able to sign their marriage contracts.		
	Men.	Women.	Both sexes.
1854 to 1855.....	68.4	52.6	60.5
1856 to 1860.....	74.1	53.9	61.6
1861 to 1865.....	71.8	57.5	64.6
1866 to 1870.....	75	62.3	68.6
1871 to 1875.....	77.8	66.3	72.7
1876 to 1877.....	81.2	70.6	75.8

Gutter children in Paris.—From a report recently furnished to the prefect of the Seine by the Bureau de l'assistance publique, it appears that, during the year 1880, 1,672 children deserted by their guardians or having no home were brought up by the police, of whom 1,033 were charged with being beggars and vagabonds; and of this number 80 were girls. It is significant that only 124 were given up to their parents and friends. Out of 219,000 children between 6 and 14 years of age living in Paris, there are about 7,000 who attend no school. The report concludes with the statement that each year 600 children are sent into the provinces and placed with different employers, who give them elementary instruction and teach them a trade.

SCHOOL FINANCES.

The following table shows the ordinary expenditure for public primary schools in different years from 1833 to 1877:

Years.	Francs.	Years.	Francs.	Years.	Francs.
1833.....	10,545,576	1860.....	28,134,856	1869.....	49,565,496
1837.....	9,072,646	1861.....	29,343,164	1870.....	53,707,648
1840.....	9,884,421	1862.....	30,099,610	1871.....	53,622,425
1850.....	12,307,077	1863.....	32,423,823	1872.....	56,189,102
1855.....	25,614,950	1864.....	34,285,132	1873.....	60,025,039
1856.....	26,452,858	1865.....	34,556,493	1874.....	61,927,045
1857.....	27,663,325	1866.....	35,053,287	1875.....	63,789,088
1858.....	27,304,597	1867.....	33,849,717	1876.....	68,150,621
1859.....	27,683,045	1868.....	48,913,533	1877.....	71,715,687

The following table shows the resources devoted to the ordinary expenditure for primary schools from 1855 to 1877:

Years.	Francs.	Years.	Francs.	Years.	Francs.
I. Donations and endowments.		I. Donations and endowments.		I. Donations and endowments.	
1855.....	169,958	1863.....	300,509	1871.....	927,803
1856.....	179,122	1864.....	316,844	1872.....	940,868
1857.....	189,904	1865.....	349,697	1873.....	967,501
1858.....	215,575	1866.....	339,170	1874.....	1,006,268
1859.....	214,073	1867.....	376,816	1875.....	1,049,446
1860.....	229,305	1868.....	699,752	1876.....	949,516
1861.....	262,810	1869.....	739,979	1877.....	997,837
1862.....	265,683	1870.....	897,166		
Years.	Francs.	Years.	Francs.	Years.	Francs.
II. Communal taxation.		II. Communal taxation.		II. Communal taxation.	
1855.....	9,916,820	1863.....	12,297,733	1871.....	21,952,334
1856.....	10,459,263	1864.....	13,508,494	1872.....	23,110,316
1857.....	11,237,970	1865.....	13,487,708	1873.....	25,931,237
1858.....	10,736,383	1866.....	13,735,274	1874.....	27,542,787
1859.....	10,730,321	1867.....	12,320,222	1875.....	28,735,862
1860.....	10,696,475	1868.....	19,319,385	1876.....	30,995,314
1861.....	11,142,213	1869.....	18,127,144	1877.....	31,660,365
1862.....	11,537,885	1870.....	22,389,204		
Years.	Francs.	Years.	Francs.	Years.	Francs.
III. School fees.		III. School fees.		III. School fees.	
1850.....	8,745,408	1862.....	13,281,905	1870.....	18,536,708
1855.....	9,090,981	1863.....	14,428,370	1871.....	16,624,906
1856.....	9,356,132	1864.....	14,927,225	1872.....	17,539,895
1857.....	9,845,576	1865.....	15,151,786	1873.....	17,789,767
1858.....	10,202,980	1866.....	15,077,088	1874.....	17,972,015
1859.....	10,964,440	1867.....	14,775,023	1875.....	18,452,678
1860.....	11,887,681	1868.....	18,623,057	1876.....	18,857,886
1861.....	12,709,211	1869.....	19,169,477	1877.....	18,825,372
Years.	Francs.	Years.	Francs.	Years.	Francs.
IV. Departmental grants.		IV. Departmental grants.		IV. Departmental grants.	
1855.....	3,363,029	1863.....	2,840,912	1871.....	5,496,935
1856.....	3,370,951	1864.....	2,822,904	1872.....	5,548,922
1857.....	3,293,043	1865.....	2,835,671	1873.....	5,651,352
1858.....	3,177,698	1866.....	2,843,323	1874.....	5,681,942
1859.....	3,021,805	1867.....	2,868,544	1875.....	5,844,527
1860.....	2,959,123	1868.....	4,833,089	1876.....	6,842,642
1861.....	2,950,402	1869.....	4,944,320	1877.....	8,081,347
1862.....	2,889,758	1870.....	5,205,101		

Years.	Francs.	Years.	Francs.	Years.	Francs.
<i>V. State grants.</i>		<i>V. State grants.</i>		<i>V. State grants.</i>	
1855.....	3, 074, 161	1863.....	2, 556, 299	1871.....	8, 620, 447
1856.....	3, 087, 390	1864.....	2, 709, 664	1872.....	9, 049, 101
1857.....	3, 096, 832	1865.....	2, 731, 630	1873.....	9, 685, 182
1858.....	2, 971, 961	1866.....	3, 058, 433	1874.....	9, 724, 033
1859.....	2, 752, 406	1867.....	3, 509, 111	1875.....	9, 706, 575
1860.....	2, 362, 272	1868.....	5, 438, 251	1876.....	10, 505, 261
1861.....	2, 269, 528	1869.....	6, 584, 576	1877.....	12, 150, 765
1862.....	2, 124, 379	1870.....	6, 679, 470		

The following table shows the total ordinary and extraordinary expenditure of communes, departments, and the state for primary education:

Years.	Francs.	Years.	Francs.	Years.	Francs.
1855.....	29, 594, 531	1863.....	38, 758, 335	1871.....	61, 991, 508
1856.....	30, 626, 789	1864.....	40, 599, 088	1872.....	67, 761, 207
1857.....	32, 049, 456	1865.....	41, 286, 393	1873.....	72, 846, 290
1858.....	32, 165, 652	1866.....	41, 650, 392	1874.....	76, 125, 323
1859.....	33, 271, 209	1867.....	40, 367, 514	1875.....	77, 687, 531
1860.....	34, 063, 912	1868.....	57, 427, 083	1876.....	83, 329, 737
1861.....	35, 336, 074	1869.....	57, 998, 048	1877.....	89, 659, 690
1862.....	36, 976, 384	1870.....	61, 640, 894		

The following table shows the total expenses for primary instruction from 1855 to 1877:

Years.	Communal.	Departmental.	State.	Total.
	<i>Francs.</i>	<i>Francs.</i>	<i>Francs.</i>	<i>Francs.</i>
1855.....	19, 177, 759	5, 412, 867	5, 003, 905	29, 594, 531
1856.....	19, 994, 518	5, 462, 674	5, 169, 598	30, 626, 789
1857.....	21, 273, 450	5, 506, 031	5, 269, 975	32, 049, 456
1858.....	21, 154, 938	5, 725, 717	5, 284, 997	32, 165, 652
1859.....	21, 908, 834	5, 907, 064	5, 455, 311	33, 271, 209
1860.....	22, 813, 461	5, 826, 415	5, 424, 036	34, 063, 912
1861.....	24, 114, 234	5, 964, 976	5, 316, 864	35, 336, 074
1862.....	25, 085, 473	6, 469, 743	5, 421, 168	36, 976, 384
1863.....	27, 026, 612	6, 261, 741	5, 469, 982	38, 758, 335
1864.....	28, 752, 563	6, 366, 600	5, 479, 925	40, 599, 088
1865.....	28, 989, 192	6, 503, 034	5, 794, 167	41, 286, 393
1866.....	29, 151, 532	6, 625, 247	5, 873, 613	41, 650, 392
1867.....	27, 472, 062	6, 688, 837	6, 206, 615	40, 367, 514
1868.....	38, 642, 194	9, 646, 020	9, 138, 869	57, 427, 083
1869.....	38, 036, 600	10, 143, 935	9, 817, 513	57, 998, 048
1870.....	41, 823, 077	9, 258, 506	10, 559, 310	61, 640, 894
1871.....	39, 505, 043	10, 131, 545	12, 354, 921	61, 991, 508
1872.....	41, 591, 079	10, 822, 856	15, 347, 273	67, 761, 207
1873.....	44, 688, 505	12, 292, 657	15, 865, 128	72, 846, 290
1874.....	46, 521, 070	13, 238, 353	16, 635, 900	76, 125, 323
1875.....	48, 237, 986	13, 097, 513	16, 352, 032	77, 687, 531
1876.....	50, 802, 717	14, 632, 444	17, 894, 575	83, 329, 737
1877.....	51, 483, 575	16, 140, 355	22, 035, 760	89, 659, 690

Expenditure for every pupil and inhabitant.—In 1863 the expenditure for every pupil in the primary school amounted to 9.47 francs; in 1876 it amounted to 17.83 francs. The total expenditure compared with the total population shows that the expenditure for every inhabitant of France amounted to 82 centimes in 1855, to 1.04 francs in 1863, to 1.51 francs in 1868, and to 2.10 francs in 1875.

The following table shows the different departments of France, with the total expenditure for primary education for every inhabitant in 1875:

Departments.	Francs.	Departments.	Francs.
Hautes-Alpes.....	4. 08	Enre.....	2. 17
Lozère.....	3. 66	Charente.....	2. 14
Basses-Alpes.....	3. 31	Manche.....	2. 09
Bas-Rhin.....	3. 06	Gard.....	2. 07
Haut-Rhin (Belfort).....		Cher.....	2. 06
Jura.....	2. 94	Haute-Garonne.....	2. 00
Haute-Saône.....	2. 93	Hérault.....	2. 00
Oise.....	2. 90	Rhône.....	2. 00
Seine.....	2. 83	Ardèche.....	1. 97
Yonne.....	2. 77	Haute-Savoie.....	1. 97
Meuse.....	2. 73	Nièvre.....	1. 96
Hautes-Pyrénées.....	2. 73	Sarthe.....	1. 96
Ardennes.....	2. 66	Alpes-Maritimes.....	1. 94
Corse.....	2. 65	Nord.....	1. 94
Haute-Marne.....	2. 64	Pas-de-Calais.....	1. 94
Ariège.....	2. 62	Lot-et-Garonne.....	1. 93
Isère.....	2. 62	Corrèze.....	1. 92
Pyrénées Orientales.....	2. 61	Gironde.....	1. 91
Marne.....	2. 59	Lot.....	1. 91
Seine-et-Marne.....	2. 58	Seine-Inférieure.....	1. 91
Doubs.....	2. 57	Loir-et-Cher.....	1. 90
Drôme.....	2. 55	Basses-Pyrénées.....	1. 90
Seine-et-Oise.....	2. 46	Saône-et-Loire.....	1. 89
Côte-d'Or.....	2. 45	Creuse.....	1. 88
Aube.....	2. 43	Indre-et-Loire.....	1. 86
Aude.....	2. 42	Mayenne.....	1. 86
Cantal.....	2. 42	Indre.....	1. 84
Eure-et-Loir.....	2. 42	Allier.....	1. 81
Aveyron.....	2. 39	Landes.....	1. 78
Tarn-et-Garonne.....	2. 38	Bouches-du-Rhône.....	1. 70
Gers.....	2. 34	Maine-et-Loire.....	1. 67
Savoie.....	2. 34	Vaucluse.....	1. 66
Somme.....	2. 33	Var.....	1. 65
Aisne.....	2. 31	Haute-Vienne.....	1. 63
Calvados.....	2. 31	Vendée.....	1. 61
Dordogne.....	2. 29	Loire.....	1. 55
Ain.....	2. 28	Vienne.....	1. 45
Loiret.....	2. 27	Ille-et-Vilaine.....	1. 41
Meurthe-et-Moselle.....	2. 24	Puy-de-Dôme.....	1. 37
Orne.....	2. 23	Côtes-du-Nord.....	1. 30
Deux-Sèvres.....	2. 22	Loire-Inférieure.....	1. 18
Vosges.....	2. 22	Haute-Loire.....	1. 15
Charente-Inférieure.....	2. 20	Finistère.....	1. 05
Tarn.....	2. 18	Morbihan.....	. 86

EDUCATIONAL PROGRESS UNDER THE REPUBLIC.

After the overthrow of the second empire, M. Jules Simon, one of the most distinguished educational writers in France, became minister

of public instruction. The chief aim of the new minister was to make primary education as general as possible and to raise the French schools of all grades to a level with the best in any country of the world. On the 14th of October, 1870, he decreed the foundation of an elementary normal school for both sexes. In his circular he says:

If you ask why we establish this school now, at a time when everybody is anxiously watching the fearful conflict raging in the very heart of our country, at a time when all other duties seem to be absorbed in the one of national defence, we answer that this question of reform in the field of education was matured long ago; that we have studied it for many years; that not a day is to be lost. * * * The unexampled misfortunes which have befallen the country during the last two weeks of the empire should teach us the lesson, never to be forgotten, that the only power which makes a nation invincible is intellectual and moral power. This we must restore before we can hope for any victory on the battle field.

In 1871 M. Jules Simon prepared a bill and submitted it to the Chambers. Although it did not become a law, in consequence of opposition from the conservative parties, it has served as a basis for later educational laws and decrees. The following are the most important articles of M. Jules Simon's bill:

1. Every child between 6 and 13 must receive a minimum of education, either in the public or private schools, embracing the obligatory branches of instruction, to be certified to by the ministry of public instruction, through its subordinates in the departments, at the end of the period of schooling.

2. A school committee, consisting of delegates from the canton, the mayor, the clergyman, and three heads of families appointed by the municipal council, is to note the attendance at school.

3. The government inspector in each district has a seat and vote in this committee.

4. If a child misses school three times during a month, without excuse, the father or guardian is summoned before the school committee and is warned. If the case recurs his name is placarded at the mayor's office and his family is deprived of all aid from the public fund. If this does not induce him to send his child to school, a fine not exceeding 100 francs is imposed, and, finally, he can be deprived of his rights as a citizen for a period of three years.

5. The school committee issues certificates to children 13 years of age who have passed a public examination, to which all must submit, whether educated in public or private schools. If, at this examination, it becomes evident that a child, who was supposed to receive private instruction, has in reality not received instruction in the obligatory branches, legal proceedings are instituted against the father or guardian.

6. From January 1, 1880, no citizen 21 years old will be registered as an elector who does not possess the above mentioned certificate from his local school committee or give sufficient proof of being able to read and write.

Later, in 1877, M. Bardoux, then minister of public instruction, prepared another primary education bill, which also failed to become a law. The principal features of this bill are:

1. Every commune has a right to make its public schools perfectly free.

2. Communes which do not wish the assistance of the state for the establishment of free schools have to defray expenses for this purpose from their own resources.

3. State subsidies are granted to communes in case the school tax does not suffice to cover the expenses for public instruction. The minimum of taxation shall be 4 centimes on the franc (of the taxes raised); the maximum, 10 centimes.

4. As soon as free schools are established in a commune all public schools without distinction must be free. Under extraordinary circumstances the local authorities may, with the permission of the minister of public instruction, make a temporary exception to this rule.

5. The mode of taxation for school purposes in communes which desire state subsidies under the present law shall be regulated by a special decree of the ministers in council.

The present minister of public instruction, M. Jules Ferry, has warmly advocated the passage of a law tending to make primary education gratuitous, obligatory, and of lay character. This bill has passed the Chamber and is now before the Senate. The following are the principal features of the bill to establish gratuitous, obligatory, and lay instruction in all primary and advanced primary schools, submitted by M. Barodet and a large number of his colleagues, and favorably reported to the Chamber of Deputies, December 6, 1879:¹

SECTION I.

Chapter I.—Primary schools.

ARTICLE 1. Primary instruction is given (1) in infant schools; (2) in primary schools proper; (3) in advanced primary schools.

These schools may be public (communal, departmental, or state schools) or private (belonging to individuals or associations).

The present *salles d'asile* take the name of *écoles enfantines* (infant schools).

ART. 2. Instruction in infant schools comprises instruction in morals; reading and writing of words and numbers; object lessons; elements of singing; and gymnastics.

ART. 3. Instruction in primary schools proper comprises instruction in morals and civil duties; reading and writing; elements of the French language and literature; geography, especially of France; history, especially modern history of France; elements of law and political economy; elements of natural, physical, and mathematical sciences; their applications to agriculture, hygiene, industrial arts, manual work, and the use of the tools of principal trades; elements of drawing, modelling, and music; gymnastics. For boys, military exercises; for girls, needle-work.

ART. 4. In the advanced primary school the branches of instruction of the primary school proper are more fully developed.

ART. 5. Instruction in at least one foreign language, obligatory in the advanced primary schools, may be given in the primary schools proper and in the infant schools.

Chapter II.—Teachers' diplomas.

ART. 6. There are three kinds of diplomas conferred after public examination: (1) The diploma for infant school teachers; (2) the diploma for primary school teachers; (3) the diploma for advanced primary school teachers.

SECTION II.—OBLIGATORY PRIMARY INSTRUCTION.

Chapter I.—Conditions of obligatory attendance.

ART. 8. Primary instruction is obligatory for all children of both sexes between 6 and 13. This instruction may be given in public or private schools or at home.

ART. 10. The parents or guardians have to inform the mayor of the commune at

¹The committee for the examination of this bill consisted of M. Paul Bert, president, and 21 other members of the Chamber of Deputies.

least 15 days before the opening of the schools whether they intend to send their children to public or private schools.

ART. 11. The mayor of the commune prepares every year a list of the children of school age and sends copies of the same to the directors of public and private schools and to the school inspector.

ART. 12. Whenever a child leaves a school the parents or guardians must inform the mayor at once.

ART. 13. The directors of public and private schools have to submit every month to the mayor and the inspector of schools a list of absentees and the causes of absence from school.

Chapter II contains various disciplinary measures.

SECTION III.—PUBLIC SCHOOLS.

Chapter I.—The establishment and management of public schools.

ART. 20. The programmes and regulations of public schools are prepared by the minister of public instruction.

ART. 21. Industrial training appropriate to local wants and resources shall be given in the advanced primary schools.

ART. 22. Religious instruction shall be given, with the consent of the parents, by the ministers of the different denominations outside of the school buildings and at an hour fixed by the departmental director.

ART. 23. Each commune must have at least one primary school. Communes of 500 inhabitants and more must have at least one primary school for boys and one for girls.

ART. 24. An advanced primary school must exist in every canton. An infant school must exist in every commune of 2,500 inhabitants.

ART. 25. In Algeria the establishment of advanced primary schools and infant schools is obligatory for all communes having a European population of 1,500.

ART. 26. The primary school admits children at their fifth year in communes without infant schools and at their sixth year in communes with infant schools.

The infant school admits children of both sexes until they are 6 years of age.

The advanced primary school admits pupils from their twelfth year, if they possess the required preparatory training.

ART. 27. Infant schools and all grades of primary schools for girls are taught by female teachers. Boys' schools are in charge of male teachers only.

Female teachers may act as assistants in boys' primary schools in case they are the wives, sisters, or near relatives of the directors of the respective schools.

ART. 28. Courses for adults shall be established in connection with all primary schools. These courses shall be conducted by the male and female teachers of primary schools.

Chapter II.—Teachers.

ART. 29. Teachers must be (1) French citizens; (2) must be provided with certificate of capacity; and (3) must not belong to any religious order, institute, community, or congregation, and not be a minister of a religious denomination.

ART. 30. All administrative functions and all commercial and industrial pursuits are forbidden to public school teachers.

ART. 31. Primary school teachers are appointed by the departmental director.

Chapter III.—Primary normal schools.

ART. 39. Each department is obliged to maintain two primary normal schools, one for males and one for females. A practice school must be connected with each normal school.

Chapter IV.—Gratuity of education.

ART. 46. Instruction is gratuitous in the three kinds of primary schools: Infant schools, primary schools proper, and advanced primary schools. Instruction is also gratuitous in the primary normal schools.

ART. 47. The salaries of primary teachers are as follows: First class teachers, 1,900 to 2,200 francs; second class teachers, 1,600 to 1,800 francs; third class teachers, 1,300 to 1,500 francs; fourth class teachers 1,000 to 1,200 francs.

Directors and directresses receive 300 francs in addition to the above amounts.

ART. 51. The expenses for buildings (school-houses and teachers' dwellings), school furniture, heating, and cleaning are at the charge of the communes.

The expenses for building and maintenance of normal schools are at the charge of the departments.

ART. 52. The salaries of teachers and all other functionaries of primary schools are at the charge of the state.

SECTION IV.—PRIVATE SCHOOLS.

ART. 55. The directors of private schools prepare their own programmes.

ART. 56. Any French citizen 21 years of age may open a private primary school, provided he does not belong to any religious order, institute, congregation, or community. He must, moreover, be in possession of a teacher's diploma.

ART. 59. A teacher who desires to open a private school must previously give notice to the mayor of the commune and the departmental director.

ART. 60. The departmental director may oppose the establishment of a private school for moral or sanitary reasons. In case of an opposition on the part of the departmental director the matter must be laid before the departmental educational council. From the decision of this council an appeal may be taken to the superior council of public instruction. Section V contains the regulations concerning the creation of a new office, that of departmental director, who is to take the place of the prefect as far as educational affairs are concerned.

ENCOURAGEMENT OF TEACHERS UNDER THE REPUBLIC.

In order to enable primary school teachers to visit Paris during the Universal Exposition of 1878, the French Chambers appropriated 100,000 francs, and placed this amount at the disposal of the minister of public instruction. A committee was appointed to make the necessary arrangements. They decided to invite 1,000 teachers, 90 school inspectors, 80 directors of normal schools, and 80 normal school teachers. These 1,250 delegates were invited to attend the educational conferences arranged for them at the Sorbonne. The opening speech was made, August 16, 1878, by M. Casimir Perier, under secretary in the ministry of public instruction, worship, and fine arts. The first conference was held on the same day by M. E. Levasseur, of the Institute of France. He spoke of the teaching of geography, which is one of M. Levasseur's favorite subjects. The second conference was held by M. B. Berger, inspector of primary schools and late delegate of the French government to the Philadelphia Exhibition. His subject was the teaching of the mother tongue. The third conference was held by M. Brouard, who explained the method of teaching history in primary schools. He was followed by M. G. Jost, whose subject was teachers' conferences and educational libraries; M. Maurice Girard, who spoke on the teaching of physical and natural sciences in primary schools; M. Michel Bréal, whose subject was the teaching of the French language in primary schools; Dr. Riant, who treated school hygiene; M. A. Dupaigne, on singing in schools; M. Liès-Bodard, on elementary chemistry, and M. F. Buisson, late president of

the French delegation to the Philadelphia Exhibition, who had chosen for his subject the intuitive method. M. Bardoux addressed the conference twice. Translations of his excellent addresses are given in the Report of the Commissioner of Education for 1878, pages clvi and clvii.

Educational conferences are very much encouraged by the present minister of public instruction, M. Jules Ferry. On the occasion of the annual assembly of the learned societies, he invited the directors and directresses of normal schools and a section of primary inspectors to meet together at Paris during Easter week in 1880, in order to take part in the educational conferences. The two following questions had been submitted for their examination:

- (1) The organization of primary schools with a single teacher.
- (2) The means of securing the best supply of students for normal schools, conditions of preparation, and admission.

Elaborated at first in each of the sections, these questions were then discussed in two general meetings, and were embodied in a number of resolutions which were adopted by the full assembly.

The closing meeting took place on Friday, April 2, at the Salle Gerson, and was presided over by the minister of public instruction, who was supported by M. Gréard, vice rector of the Academy of Paris, M. Buisson, inspector general and director of primary instruction, and M. Boutan, inspector general and honorary director of primary instruction. M. Gréard rendered an account of the work of the various sections. He called attention to the excellent results produced by this first pedagogic congress. The two secretaries (rapporteurs) MM. Clerc, primary inspector at Paris, and Mariotti, director of the normal school of Versailles, read the resolutions adopted on each of the two questions.

The following is the text of the resolutions as to the first question, organization of schools with one teacher:

(1) Whereas it is important to economize the teaching power of the master, putting him as much as possible in direct communication with his pupils, and thus facilitating simultaneous instruction; and whereas account must also be taken of the difficulty of meeting with suitable assistance: the congress fixes a maximum of 50 pupils to one teacher. Every school which exceeds this number must be provided with an assistant. This number comprises all the pupils in the school, from five years old and upwards, and will be determined by taking as a basis the six months during which the school has been best attended.

(2) Whereas the diversity of ages and mental aptitude necessitates the creation of several divisions; whereas, on the other hand, it is important not to multiply these divisions, so as not to disperse the teaching power of the master and lose the fruits of emulation; and whereas it is important that the course of instruction from year to year should differ only by degrees: the conference is of opinion that three courses should be constituted: an elementary course, a middle course, and a higher course.

(3) Whereas it is necessary to set forth in detail the subjects of instruction in each course, so as to determine exactly the work of the master; and whereas the duration of the school period is often reduced for country children, who ought, nevertheless, to receive as thorough a schooling as possible: the congress is of opinion that each course should have its particular programme, and that this programme should be for one year,

with temporary power to go through it in less time, provided that it be no less than six months.

(4) Whereas the object to be obtained is the same in all schools, and should be secured by the most efficacious means; and whereas the schools in the department of the Seine have excellent programmes and have produced most satisfactory results thereby: the congress is of opinion that the programmes of primary instruction should be obligatory in all rural schools, and that these programmes should be modelled on those of the department of the Seine.

(5) Since there is room for raising the standard of the subjects of study and for putting it more in harmony with the needs of the times, the congress thinks that the programme of obligatory subjects should be augmented, and recommends the following additions: (a) drawing; (b) singing; (c) principles of civic education; (d) elements of hygiene and of physical and natural sciences applicable to the usages of life; (e) the elements of political and domestic economy. The subjects comprised under the last two heads are to be taught in the form of object lessons.

(6) Whereas each subject should be assigned a place proportioned to its importance: the congress is of opinion that there should be uniformity for all the schools in the distribution of the time given to the various studies.

(7) Since the only really profitable instruction is that given by the master and since it is important to multiply the means of putting the teacher in direct communication with his pupils: the congress is of opinion that the lessons should be given in the collective form for all the pupils of the school to a very large extent.

(8) Whereas the great inequality in the attainments of children compels the subdivision of the elementary course, at least for some subjects (while on the other hand care should be taken to reduce to a minimum the number of the divisions, in order that the pupils may receive most frequently their instruction direct from the master): the congress, while reasserting its opinion that no course should be divided, thinks that a subdivision may be tolerated provisionally, and for certain subjects only, in the elementary school.

(9) Whereas woman is particularly fitted for the training of young children, and additional assistance will be necessitated by the subdivision spoken of in the last resolution; and whereas in the special case of mixed schools the presence of women is desirable: the conference is of opinion that the master should be empowered to employ a helper, who should be, if possible, the wife, sister, daughter, or mother of the teacher, and that the pupils should be utilized as helpers only in exceptional cases.

Following is the text of the resolutions as to the second question, the means of securing the best supply of students for normal schools:

(1) Since primary normal schools are usually recruited from families of moderate means, and as for these families attendance at school at an age when children might contribute by their labor to the common well being is equivalent to a loss of income, the congress thinks that subsidies or scholarships should be granted to aspiring male and female students during the time of their preparation.

(2) Since the creation of preparatory schools annexed to normal schools presents grave difficulties, the congress is of opinion (1) that this preparation should be confided to public school teachers, and (2) that due encouragement should be given by means of rewards for the prosecution of this work.

(3) Since preparation in normal schools requires some amount of ripe judgment, the congress unanimously asks that no one be admitted into these schools before the age of sixteen in the case of males and fifteen in the case of females, and that for both the age of eighteen should be the maximum limit for admission.

(4) Since the primary inspectors cannot satisfactorily furnish sufficient data to the higher authority as to the intellectual worth and moral aptitude of candidates, the congress thinks that the examinations for admission to the normal school, after due inquiry and medical examination, should take place at the normal school, and that

the candidates should be boarded and lodged at the expense of the department during the time necessary—eight or ten days at least—for the examiners to class them in order of merit.

(5) Considering the importance of raising the standard of studies in the normal schools, the congress expresses the wish (1) that the certificate of primary studies, obtained in conformity with a well considered official programme, should be henceforth exacted from candidates for the bursaries of the normal school; (2) that the scale of mistakes allowable in the test for spelling should be revised, and that this test should cease to exclude; (3) that the subject of style should not be exclusively borrowed from history; (4) that the elements of practical geometry should be added to the test of arithmetic; (5) that drawing and writing should be subjected to additional tests.

(6) Since the teaching staff of the normal schools is particularly interested in the due supply of students, the congress is of opinion that this staff should form part of the commission of examination for admission with the primary inspectors, and that the number of scholarships held in each normal school should be equal to the number of pupils necessary for the annual supply of teachers.

(7) Favors the furnishing of books, &c., to normal pupils free of charge.

(8) Relates to the duty of graduates to serve in school after they have received a training in the normal school.

(9) In order to give an impetus to study, the congress recommends the publication of the programmes of instruction since 1866.

(10) No student should be allowed to graduate before he has completed a course of three years.

The eleventh, twelfth, and thirteenth resolutions are of purely local interest.

(14) Without specifying the motives leading to its conclusion, the congress desires the radical suppression of all equivalents for the certificate of competency.

(15) Students should endeavor to obtain the higher or complete certificate of competency.

The sixteenth resolution is of local interest.

(17) Without deeming it necessary to assign its motives, the congress considers it the duty of all those who hold office, in all grades of primary instruction, to support to the best of their ability the authority of the University of France.

(18) Considering that no citizen ought to avoid serving his country in arms when circumstances demand it and that it is important to establish equality between all citizens on this particular point, the congress is of opinion that the schoolmaster should be liable to military service.

M. Chopinet, director of the normal school of Clermont, then read, amid the cheers of the assembly, an address to the minister of public instruction, in which he expressed the great regard in which the minister was held by all those who were engaged in primary instruction. The minister then pronounced the following discourse:

GENTLEMEN: I am profoundly touched by the sentiments which have just been expressed, the warmth of which probably surpasses the amount of reward which you intended to offer me to-day. I am also very much touched to see such an assembly before me. This meeting has been called on the proposition of my collaborators, of those who have already worked before me at the development of popular instruction. You see one of them on my right. It may be said of Monsieur le Recteur, without wounding the feelings of others, that he is one of the "maîtres du bien" of our country, and that for many years the several ministers of public instruction have learned something from him, and that several have benefited much from his large experience, his rare tact, and his judicious foresight.

What does a minister of public instruction amount to? Just what his collaborators

are worth. And knowing that you have worked much during this first congress and that you have used the time well which was given you for study and recreation, I have come here to tell you that we in the ministry work too, and that we work much. You know this; you read the *Journal Général*. But it will doubtless be agreeable to you and useful for everybody to know what has been done in the ministry during the last year, both from a legislative and an administrative standpoint.

Nobody should believe and I should not want to have it said that the ministry of public instruction has occupied itself during the last year with nothing else but politics and article 7. The ministry has worked at the preparation of a number of laws, some of which have been promulgated and some of which are still to be acted on. The law concerning the establishment of normal schools for girls has passed both Chambers. We have also got through the Chambers the two laws tending to make the teaching of agriculture and gymnastics obligatory in primary schools. We have also defended before the Chambers and promulgated the law which reorganizes the superior council of education. This law allows you, as you know, for the first time to exercise the right of citizenship in the great University of France, to which you belong on account of your origin, your education, and your broad and liberal principles.

We have submitted another bill which gives satisfaction to the wishes expressed in your address because it tends to amend the laws relative to certificates of capacity and suppresses the letters of obedience. We have also submitted a project of law making education gratuitous and obligatory. [Here the minister refers to the attempts made by MM. Jules Simon and Waddington.]

As regards primary inspectors, we have increased their travelling fees, so that they may visit the schools more frequently.

You know what we have done for the normal schools. I consider it an honor to myself to have increased the salaries of lady principals. Ladies, this duty had been neglected too long. I also wish to increase the salaries of the male principals, and I have inserted a sum for this purpose in the budget.

Now, as regards the administrative work of the ministry, do you know what has been accomplished under the able and energetic direction of the collaborer on my left [M. Buisson]? From February 1, 1879, to April 1, 1880, we have established 700 schools and created 800 new places for assistant teachers.

After speaking of the new council of education and the work to be laid before it, and making a few remarks to the school inspectors, the minister withdrew and the congress adjourned.

EDUCATIONAL TOURS.

The following letter of the French minister of public instruction explains an interesting method by which it is sought to improve the qualifications of teachers in the French Republic:

PARIS, May 7, 1880.

MONSIEUR LE RECTEUR: I hasten to bring to your knowledge two measures which I have thought necessary to encourage our young teachers in thorough and earnest study. At my suggestion the President of the Republic has been pleased to sign a decree modifying article 5 of the decree of April 19, 1862. Henceforth the student who has obtained a full certificate of capacity on leaving the normal school will receive not the former indemnity of 100 francs, but 200 francs.

Besides this favor, the object of which is to aid the better class of our normal graduates at the start of their career, I have sought for some other reward which might at the same time further their intellectual development. I think I have found it in an institution that is already old and has even been discarded in this country, but which has been successfully revived during the last few years, especially in the higher normal schools of Paris. I allude to educational tours during the holidays.

The holiday excursions I desire to organize in the interest of our best normal students should be essentially educational tours; scientific expeditions I will not call them, but expeditions carefully arranged, well directed, and animated by the spirit of methodic observation. They should be under the guidance of a learned and experienced teacher, whom I shall select among the *maîtres-adjoints* (assistant teachers) who have had charge during the year of the heavy task of supervision. The young students will get accustomed to see for themselves, to see much, and, above all, to see well, historical monuments, relics of archæology, picturesque views, topographical peculiarities, natural phenomena, the products of industry and agriculture, local traditions, customs, and languages, all of which should be to them material for study and reflection. Under these conditions the tour would bear all its fruits, without being necessarily very extensive or very long. According to the number of normal students who desire to take part, several educational caravans may be organized to send the students of northern departments to the south of the country and those of the interior departments to the seashore; in thus presenting the country to them from new points of view, they will get a better knowledge of it and love it more.

Later, when these vacation tours have been successfully organized and conducted, their range may be extended; they may for example pass into adjoining foreign countries where primary education and the study of educational science are in high esteem. This would be a new source of fruitful observations and beneficial comparisons.

I look for the best results from this daily intercourse of the most distinguished of our normal pupils during their holiday tour, and hope that it may dissipate many provincial prejudices.

The young tourists will be expected to write an account of what has particularly interested them; the best passages of these memoirs may be reproduced in the departmental educational bulletins.

You are requested, Monsieur le Recteur, to forward me a list of the normal pupils who have obtained the complete certificate in 1879 and 1880 and whom you recommend for the first expedition, to be organized during the coming holidays. Immediately after the close of the session of July, you will add the names of the new students who have received the complete certificates. I shall inform you at what date, to what parts of the country, and under what conditions the first tour of the normal pupils will take place.

Respectfully, &c.,

JULES FERRY,

Minister of Public Instruction and Fine Arts.

MINISTERIAL DECREE RELATING TO PRIMARY EDUCATION.

Following are the regulations governing the admission of children to public primary schools in France (ministerial decree of June 7, 1880):

ARTICLE 1. To be admitted to a public primary school in France, children must be over 6 and under 14 years of age. Outside of these limits they cannot be admitted without a special permit of the academic inspector.

ART. 2. Each child must furnish a certificate of birth. The teacher shall be assured that the child has been vaccinated and that it is free from contagious diseases.

ART. 3. As regards religious instruction, the wishes of the parents shall always be complied with.

ART. 4. The teacher has charge of the classroom; he shall not allow the same to be used for any purpose foreign to the school without the authorization of the prefect of the department.

ART. 5. During school hours the teacher is not allowed to take up anything not belonging to his professional duties.

ART. 6. Pupils may not be taken from their studies during school hours.

ART. 7. No person is allowed to enter the school except the legal inspectors and supervisors.

ART. 8. The teachers shall make no distinction between paying and non-paying pupils. They must all, without distinction, receive the same lessons in the same class rooms.

ART. 9. The schools shall be in session three hours in the morning and three hours in the afternoon. The morning session begins at 8 o'clock and the afternoon session at 1 o'clock. Each session shall be divided by a recess of a quarter of an hour. At the request of local authorities, the academic inspector, the hours for beginning and closing the sessions may be modified according to circumstances.

ART. 10. The children must come to school in clean clothes. The teacher shall examine the pupils in this respect at the beginning of the school.

ART. 11. When a teacher is put in charge of a school, he shall make an inventory of the furniture, apparatus, books, and of his personal property and that of his assistants.

ART. 12. A price list of books, &c., approved by the school inspector, shall be placed in every school. This list contains the books, &c., which the teacher is authorized to sell to his pupils.

ART. 13. The school rooms must be whitewashed or cleaned every year and must always be kept clean and in a healthy condition. They must be swept once a day; they must frequently be ventilated. During recess the windows must be open.

ART. 14. French shall be the only language used in the schools.

ART. 15. All theatrical performances are forbidden in the public schools.

ART. 16. No books, pamphlets, or manuscripts, except those authorized by the academic inspector, shall be used in school.

ART. 17. Petitions, collections, subscriptions, or lotteries are also forbidden.

ART. 18. The teacher is not allowed to inflict any punishment, with the exception of bad marks, reprimands, a partial privation of recreation, keeping after school under the control of the teacher, and temporary exclusion from the school. The last penalty may not exceed two days. The teacher must notify the parents at once; also, the local authorities and the primary inspector.

ART. 19. It is strictly forbidden to inflict corporal punishment.

ART. 20. The school shall be closed on Thursday and Sunday of each week and on special holidays.

ART. 21. Extra holidays are: One week at Easter; New Year's day, or the following day if new year falls on a Sunday or a Thursday; the day after Whitsunday; the day after All Saints' day; the patron days; the national holidays.

ART. 22. The time and duration of the long vacations shall be fixed every year by the prefect and the departmental council.

ART. 23. The teacher may not change the school days or absent himself without the authorization of the primary inspector and without giving notice to the local authorities. In case the teacher wants to absent himself more than three days, he has to have the permission of the academic inspector. Leave of absence for more than one week can only be given by the prefect.

ART. 24. The organization of the school, the preparation of programmes and time tables, &c., shall be the duty of the departmental council. Their decisions shall be submitted for approval to the academic inspector and rector.

ART. 25. These regulations shall also be applied to schools for girls.

ART. 26. The regulations of August 17, 1851, are abrogated.

PARIS, June 7, 1880.

JULES FERRY.

Minister of Public Instruction and Fine Arts.

III.

Following is an abstract of the report on primary education in Paris and in the department of the Seine from 1867 to 1877,¹ by M. Gréard, member of the Institute, inspector general of public instruction and director of primary instruction in the prefecture of the Seine:

INTRODUCTION.

In the introduction of this report, which was prepared for the Paris Universal Exposition, M. Gréard, says: "Universal exhibitions are for every nation an opportunity to examine by review what progress it has made and what still remains to be done. In the present report, we intend to show what has been accomplished in Paris and the department of the Seine for the development of primary education. The events of 1870 arrested but did not entirely stop the work of improvement. It has been resumed with fresh vigor since 1871, thanks to the resources placed at the disposal of the educational authorities by the municipal council of Paris and the council general of the department of the Seine. This résumé of the reforms realized from 1867 to 1877 will perhaps be the more interesting as these ten years form the first period of the application of the present pedagogic organization of our schools, the principles of which have served as a basis for all the improvements which have been made."

PRIMARY EDUCATION AT PARIS.

Condition in 1867.—In 1866 the population of Paris was 1,825,274, viz, 929,958 males and 895,316 females.

The number of children between the ages of 2 and 6 and 6 and 14 in 1866 may be estimated at 296,397. Of these 296,397 children, 155,700 were on the rolls of public and private primary schools in 1867, viz, 73,988 in public schools, 81,712 in private schools, 16,085 in the salles d'asile. The total number of pupils in attendance was 139,615, viz, 60,390 in public and 79,225 in private schools.

The number of establishments was 1,491, viz, 303 public and 1,188 private schools. Among the 303 public schools there were 83 salles d'asile, and among the 1,188 private schools 37. There were thus 1,371 primary schools, viz, 414 for boys and 957 for girls. Paris had, therefore, in 1866-'67, 1 public salle d'asile to every 21,991 inhabitants and 1 private salle d'asile to every 49,331 inhabitants, or 1 public or private salle d'asile to every 15,210 inhabitants; 1 public primary school to every 8,296 inhabitants and 1 private primary school to every 1,585 inhabitants, or 1 public or private school to every 1,331 inhabitants.

¹ L'enseignement primaire à Paris et dans le département de la Seine de 1867 à 1877. Paris, 1878.

Condition in 1877.—In 1876 the population of Paris was 1,988,806. The number of children between the ages of 2 and 6 years was 113,190, and between the ages of 6 and 14, 209,764. In 1877 there were present in the *salles d'asile* 26,718 children, viz, 22,837 in public and 3,881 in private *salles*; the number present in the schools was 168,729, viz, 93,157 in public and 75,572 in private schools. There were thus 195,447 children present in *salles d'asile* and primary schools in 1877. The number of establishments was in the same year 1,404, viz, 146 *salles d'asile* (110 public and 36 private) and 1,258 schools (285 public and 973 private). Of these 1,404 schools 391 were for boys (141 public and 250 private) and 867 for girls (144 public and 723 private). Paris had thus in 1877 1 public *salle d'asile* to every 18,080 inhabitants and 1 private *salle d'asile* to every 55,241 inhabitants, or 1 public or private *salle d'asile* to every 13,621 inhabitants; 1 public primary school to every 6,978 inhabitants and 1 private primary school to every 2,043 inhabitants, or 1 public or private primary school to every 1,580 inhabitants. There were on the rolls 1.14 per cent. of the population in public *salles d'asile* and 0.19 per cent. of the population in private *salles d'asile*, or 1.34 per cent. in public or private *salles d'asile*; 4.68 per cent. in public schools and 3.80 per cent. in private schools, or 8.48 per cent. in public or private schools. There was in the same year 1 public school for boys to every 14,105 inhabitants and 1 private school for boys to every 7,955 inhabitants, or 1 public or private school for boys to every 5,086 inhabitants; 1 public school for girls to every 13,811 inhabitants and 1 private school for girls to every 2,750 inhabitants, or 1 public or private school for girls to every 2,293 inhabitants; 2.47 per cent. of the population were in public schools for boys and 1.36 per cent. in private schools for boys, or 3.84 per cent. in public or private schools for boys; 2.21 per cent. in public schools for girls and 2.43 per cent. in private schools for girls, or 4.64 per cent. in public or private schools for girls.

From the foregoing data it results that the number of public and private primary schools and *salles d'asile* in Paris has decreased since 1866-'67 from 1,491 to 1,404. The number of pupils on the rolls has, on the contrary, increased from 155,700 to 195,447, an increase of 39,747, or more than one-fourth.

The total number of new schools erected in Paris since 1867 is 105, viz: 15 in 1867, 6 in 1868, 7 in 1869, 7 in 1870, 6 in 1871, 19 in 1872, 3 in 1873, 20 in 1874, 1 in 1875, 17 in 1876, 4 in 1877. The number of school buildings vacated during the same period is 13, the number of schools transferred to more suitable buildings 44, and the number of buildings enlarged 153. The number of new seats provided since 1867 is 44,814, viz: 40,112 in schools for boys and in schools for girls, and 4,702 in *salles d'asile*.

The number of children between the ages of 6 and 14 who do not appear to be on the rolls of public or private primary or secondary schools is 41,820. Of these about 3,000 receive an education at home and about

30,000 attend the public or private schools during part of the year. There remain thus 9,000 children for whom school accommodation must be provided; but if the number of children is added who have at present insufficient accommodation, the number of seats to be provided is 26,218. As 10,664 new seats were to be placed at the disposal of the school authorities in 1877, there remained 16,000 seats to be provided.

The organization of the classes.—In 1867 the method of mutual instruction had not yet completely ceased to be in use in the schools of Paris. It had rendered services which it would be unjust to ignore, but which ought not to be exaggerated.

The principle of this method is well known. Bell defined it, with a naïve precision, "the method by means of which an entire school may teach itself under the superintendence of a single teacher."

The process upon which this method is based has been known in France since the seventeenth century. Madame de Maintenon introduced it at Saint-Cyr. Rollin mentions it as a useful expedient. Fifty years before Bell brought it from India, Herbault applied it to the children of the Hospice de la Pitié (1747). Later it was tried successfully in a school at Vincennes by the Chevalier Paulet (1774), and Abbé Gaultier transported it to London during the Revolution (1792). But Lancaster was the first to arrange it systematically in 1801, and it is under the name of the Lancasterian system that the mutual method was adopted in our schools in 1815.

Adopted by the liberal party, this system was immediately assailed by the opposition. It was said that the Lancasterian system disturbed the basis of social order, by intrusting to children what properly belonged to men. Mutual instruction became a party question. It caused violent political discussions in the press and in the chambers. But this struggle gave the new system a vigorous impetus.

The Lancasterian system offered both pedagogical and financial advantages. The former consisted in the rapid spread of primary education, and the latter in the saving of a large amount of money. The new system cost the city of Paris 2,729,000 francs less for every 50,000 pupils than the old.

The mutual system, which was used a long time, did not give satisfactory results. The children were taught in large halls where the introduction of a graded system was impossible, and although a change was deemed indispensable it took a long time to accomplish it.

The following table shows the number of graded and ungraded schools with but one teacher on October 1, 1867, and October 1, 1877:

	1867.			1877.		
	Lay schools.	Schools of religious orders.	Total.	Lay schools.	Schools of religious orders.	Total.
<i>Schools for boys.</i>						
Number of schools	60	51	111			
Number of classes	146	204	350	473	319	792
Schools containing—						
Thirteen classes				1		1
Twelve classes						
Eleven classes				1		1
Ten classes					1	1
Nine classes				2	2	4
Eight classes				3	5	8
Seven classes	1	3	4	13	8	21
Six classes		2	2	18	16	34
Five classes	1	9	10	24	11	35
Four classes	5	15	20	16	11	27
Three classes	16	22	38	7		7
Two classes	29		29	1		1
One class	8		8	1		1
<i>Schools for girls.</i>						
Number of schools	54	55	109			
Number of classes	110	229	339	427	343	770
Schools containing—						
Ten classes				1		1
Nine classes				1	5	6
Eight classes		1	1	3	6	9
Seven classes		1	1	4	6	10
Six classes		2	2	17	16	33
Five classes		16	16	25	14	39
Four classes	1	19	20	28	9	37
Three classes	10	14	24	4	2	6
Two classes	33	2	35	2		2
One class	10		10	1		1
<i>Recapitulation.</i>						
Total number of schools	114	106	220			
Total number of classes	256	433	689	900	662	1,562
Increase of classes since 1867				644	229	873

The following table shows the attendance at the central drawing schools for girls from 1870 to 1878:

Years.	No. of pupils on the rolls.	Average attendance.
1870	1,298	727
1871	1,427	789
1872	2,058	1,566
1873	2,234	1,768
1874	2,355	1,655
1875	2,296	1,357
1876	2,419	1,486
1877	4,350	3,273
1878	4,330	3,148

School for apprentices.—The instruction of apprentices and adults forms a part of primary education, both on account of the branches taught and the teaching corps.

Two different systems have been tried for this phase of instruction: the school in the workshop and the workshop in the school. The former system is employed in the establishment on the boulevard de la Villette and the latter in the school on the rue Tournefort.

The establishment on the boulevard de la Villette admits pupils who have graduated from the primary school. The course of studies embraces technical and general instruction.

General instruction embraces besides the obligatory primary branches several optional branches, as the elements of physics, mechanics, and chemistry in relation to industry. To this is joined technical training, comprising the study of tools, raw material, products, and everything belonging to practical work in the shop. The pupils visit industrial establishments and have to give a written account of their observations.

The time is divided as follows:

From 7 to 8 A. M., study; from 8 to 11, practical work in the shop; from 11 to 12, breakfast, recreation, gymnastics; from 12 to 2.30 P. M., work in the shop; at 2.30, for the first two years, recess and lunch. From 3 to 7 P. M., the time is occupied as indicated in the following table:

Municipal school for apprentices on the boulevard de la Villette.

Days of the week.	Year.	From 3 to 4 P. M.	From 4 to 5 P. M.	From 5 to 6 P. M.	From 6 to 7 P. M.
Monday	1st	Study	Geometry	French	Geometry.
	2d	Geometry	Study	Geometry	English.
	3d	Workshop	Workshop	Sketching	Law.
Tuesday	1st	Sketching and drawing.	Sketching and drawing.	Study	English.
	2d	Study of tools	Study	Algebra	History and geography.
	3d	Workshop	Workshop	Mechanics	Descriptive geometry.

Municipal school for apprentices, &c.—Continued.

Days of the week.	Year.	From 3 to 4 P.M.	From 4 to 5 P.M.	From 5 to 6 P. M.	From 6 to 7 P.M.
Wednesday.	1st	History	Chemistry	French	Geometry.
	2d	Sketching and drawing.	Sketching and drawing.	Geometry	Physics.
	3d	Workshop	Workshop	Sketching and drawing.	Sketching and drawing.
Thursday...	1st	Reading	Geography	Arithmetic	English.
	2d	French	Chemistry	English	Arithmetic.
	3d	Workshop	Workshop	Physics and chemistry.	Technology.
Friday	1st	Sketching and drawing.	Sketching and drawing.	French	Geometry.
	2d	Mechanics	Book-keeping..	Geometry	Study.
	3d	Workshop	Workshop	Mechanics	Sketching.
Saturday	1st	Study of tools.	Arithmetic	Physics	Study.
	2d	Sketching and drawing.	Sketching and drawing.	French	Study.
	3d	Workshop	Workshop	Sketching and drawing.	Sketching and drawing.

The attendance is very regular and the discipline excellent. The increase in the number of pupils since the organization of the school is remarkable. It was opened December 8, 1872. January 6, 1873, it had 17 pupils; May 1, 1873, 64; May 1, 1874, 104; May 1, 1875, 119; May 1, 1876, 129; May 1, 1877, 149; and May 1, 1878, 165.

In the school for apprentices on the rue Tournefort the regular course is of three years. During the first two years the same branches are taught as in the school on the boulevard de la-Villette. The third year is especially devoted to sculpture and modelling. The workshop on the rue Tournefort was opened in 1873 with 13 pupils. In 1877 the number of pupils was 40.

There are, besides the above institutions, 237 factory schools, with 9,000 pupils of both sexes.

The number of children employed in different industrial establishments in Paris is, according to an investigation by the police authorities, 34,405, viz, 14,870 boys and 19,535 girls. Some of these children doubtless have received some elementary instruction. In order to accommodate these working children, several half-time schools have been established and others are to be.

Adult schools.—The courses for adults have always been popular in Paris. The law of April 10, 1867, found them in working order, and the encouragement given them under the administration of Mr. Duruy gave them an impetus which has not weakened. Despite the events of 1870-'71, 4,370 men and 1,803 women remained faithful attendants.

The following table shows the number of male and female attendants in the adult schools of Paris from 1867 to 1877:

Years.	Number of men in attendance—		Total.	Number of women in attendance—		Total.
	In lay schools.	In religious schools.		In lay schools.	In religious schools.	
1867.....	2,751	2,809	5,560	724	1,095	1,819
1868.....	3,198	3,112	6,310	804	1,612	2,416
1869.....	3,120	3,069	6,189	831	1,717	2,551
1870.....	2,814	2,494	5,308	792	1,625	2,417
1871.....	2,632	1,738	4,370	740	1,063	1,803
1872.....	3,871	2,465	6,336	979	1,727	2,706
1873.....	4,900	2,597	7,497	1,191	1,839	3,030
1874.....	4,824	2,607	7,431	1,466	2,053	3,519
1875.....	4,654	2,312	6,966	1,476	1,938	3,414
1876.....	4,697	2,279	6,976	1,499	1,952	3,451
1877.....	5,098	2,384	7,482	1,680	2,148	3,828

PRIMARY EDUCATION IN SCEAUX AND ST. DENIS (DEPARTMENT OF THE SEINE).

The population of these two arrondissements was 422,043 in 1876. The number of salles d'asile in 1877 was 85, that of public primary schools 190, and of private primary schools 233. The salles d'asile had 10,363 pupils, and the public and private primary schools 26,284. The adult schools counted 9,595 pupils.

CONDITION OF PRIMARY EDUCATION IN THE WHOLE DEPARTMENT.

In 1877 the number of pupils in salles d'asile and primary and adult schools was 285,016, and the number of public and private schools 2,296. The amount spent from 1867 to 1877 for school buildings is 58,398,926 francs. In Paris the budget for primary education has been increased nearly 50 per cent. since 1867.

Crime among children.—The following table shows the number of children arrested and the cause thereof from 1872 to 1877:

Years.	Causes.				Sex.		Total.
	Vagabondage.	Mend it y.	Theft.	Various.	Males.	Females.	
1872.....	1,338	594	869	203	2,543	461	3,004
1873.....	1,087	459	783	82	2,092	319	2,411
1874.....	722	349	607	71	1,482	267	1,749
1875.....	832	282	548	118	1,568	212	1,780
1876.....	785	235	659	75	1,556	198	1,754
1877.....	844	222	578	72	1,547	169	1,716

IV.

EDUCATION IN ALGERIA AND FRENCH COLONIES.¹

ALGERIA.

Education in Algeria was only placed under the jurisdiction of the minister of public instruction in 1848. From 1848 to 1875 this country had a special administration, and it has only twice been included in the general French statistics of primary education, in 1863 and in 1872. Hence there are here peculiar difficulties in addition to the ordinary ones encountered in the comparison of school statistics.

It is useful, however, to give an outline of the progress achieved in primary education in Algeria from the foundation of the first French schools.

Even before the French occupation the Regency of Algiers possessed numerous schools. Each mosque, each holy place, had its school. These schools were supported by the mosques or by the revenues derived from endowments. The teaching was given by the thaleb or instructor to children from 6 to 15 years of age. The course of instruction embraced the reading of the Koran, the writing of Arabic letters, and arithmetic.

After the French conquest the majority of these schools were closed, one after another, because the revenues belonging to the mosques were nearly all united to the state domain. There were, however, still from 20 to 25 of these schools in Algiers in 1837. Very little was learned in the mosque schools; the administration complained, in 1837, that the teachers had done nothing to remedy the evil.

From the month of August, 1832, to October, 1848, public instruction was placed under the control of an inspector, who was under the jurisdiction of the civil director general. In 1832, 3 French schools were opened for the children of European parents. Another school was opened for young Israelites. This school had 40 pupils and one teacher, who was engaged in teaching the children to read and write French. Other schools were established for girls. A school of mutual instruction was attended chiefly by Israelites.

In 1837, when the first complete report on the condition of the French establishments in Algeria was laid before the Chambers, there were 22 schools, of which 8 were public schools for boys, without counting the schools for natives. The number of pupils in the French schools of all grades, which was 173 in 1832 and 537 in 1833, had risen to 1,202 in 1837. Of these 1,202 pupils 1,047 were in the primary schools. The schools

¹ From the *Statistique de l'enseignement primaire* (1876-1877).

for natives had 1,085 pupils. The number of 1,047 pupils for a European population of 16,770 gives 624 pupils for every 10,000 of these inhabitants.

In 1841 the number of pupils in primary schools had risen to 1,760; but the progress among the Mussulmans was not so rapid as had been expected; their new schools had only 40 pupils. In the French primary schools the number of pupils increased rapidly. In 1845 they had 3,824 pupils, or 4,156 inclusive of the secondary schools. In 1846 the number had risen to 6,071, in 1847 to 7,113, and at the end of the year 1848 to 8,108, or to 737 for every 10,000 European inhabitants.

A decree of May 30, 1848, placed the schools of Algeria under the jurisdiction of the French minister of public instruction, and on October 1 of the same year the administration was intrusted to a rector, assisted by an academic council and several inspectors. The rector had the power to appoint teachers.

The number of schools increased more rapidly from that time. In 1848, when the Academy of Algiers was created, there were 98 schools, 71 public and 27 private, and 8 salles d'asile, with a total number of 8,108 pupils. In 1850 there were 161 schools, with 7,538 pupils, and 31 salles d'asile, with 1,365 pupils. In 1863 there were 382 schools, with 21,535 pupils, and 89 salles d'asile, with 14,464 pupils; in all, 35,999 pupils, or 17.9 schools and 1,690 pupils for every 10,000 European inhabitants. In 1863 more than two-thirds of the schools were public (268 public and 114 private) and nearly two-thirds (265) were lay schools; 116 of all the schools were for children of both sexes.

The census of 1861 gives the number of 2,140 Mussulman schools, with 2,313 teachers and 26,499 pupils. Although a decree of August 15, 1875, made all the French school laws and regulations applicable to Algeria, the Mussulman schools remained under the control of the governor general.

In 1873 the number of primary schools, salles d'asile, &c., had risen to 626, and the number of pupils to 57,200. Of these, 501 were primary schools, with 42,736 pupils.

In 1877 the number of schools was 662—544 public and 118 private; 631 were French schools and 31 Arabic-French; 232 were schools for boys, 229 for girls, and 201 for both sexes; 488 were lay and 174 religious schools. Of the 51,592 pupils attending these schools, 26,217 were boys and 25,375 girls; 25,305 were French, 17,131 foreigners, 6,710 Israelites, and 2,446 Mussulmans. The adult schools numbered 141, with 4,758 pupils.

School savings banks have been established in Algeria as in other French departments. In 1877, 48 schools had savings banks, and the number of depositors was 2,439. At the beginning of the year 1879 the number of school savings banks was 71, the number of depositors 3,156, and the amount deposited \$22,437.

The following table shows the number of pupils in Algeria from 1832

to 1877 (including with primary and secondary schools, from 1850 to 1856 inclusive, salles d'asile, orphan asylums, &c.):

Years.	Number of pupils.	Years.	Number of pupils.	Years.	Number of pupils.
1832	173	1844	3,327	1859	25,447
1833	137	1845	4,156	1860	28,294
1834	566	1847	7,347	1861	30,862
1835	644	1848	8,334	1862	33,065
1836	801	1849	8,828	1863	35,999
1837	1,202	1850	10,551	1864	38,221
1838	1,334	1851	13,061	1865	39,852
1839	1,490	1852	15,115	1866	45,375
1840	1,628	1853	16,977	1875	58,710
1841	1,945	1854	19,960	1876	73,090
1842	2,260	1855	23,014	1877	79,494
1843	2,448	1856	25,980		

The following table shows the proportion of schools, teachers, and pupils to the total population :

Years.	European population.	Number of —			Number for every 10,000 inhabitants of —		
		Schools.	Teachers.	Pupils.	Schools.	Teachers.	Pupils.
1837	16,770	22	.....	1,047	13.1	.....	624
1839	23,023	21	.....	1,204	9.1	.....	523
1843	56,582	36	.....	2,233	6.4	.....	395
1846-47 ..	103,893	108	.....	6,071	10.4	.....	584
1850-51 ..	131,283	161	.....	7,538	12.3	.....	575
1855	155,607	282	.....	13,752	18.1	.....	884
1863	213,061	382	709	26,499	17.9	33.3	1,244
1873	279,691	501	1,002	42,736	17.9	35.8	1,528
1878	344,749	662	1,260	51,592	19.2	36.5	1,497

SENEGAL AND GOREE.

Population, 21,982, of whom 1,534 are Europeans or of European descent and 20,448 natives. The number of children between the ages of 6 and 13 is 4,777, of whom 1,953 are boys and 2,824 girls. The number of schools was 8 in 1878, of which 2 were lay and 6 religious schools; 7 were public and 1 private. This private school belonged to the Protestants. The lay schools had 3 teachers in 1878 and the religious schools 19. The total number of pupils was 1,387, 972 boys and 415 girls.

GABOON.

According to Statistique de l'instruction primaire pour l'année 1863, Gaboon had 1 religious private school for boys, with 80 pupils, and 1 religious private school for girls, with 74 pupils. Other details are wanting.

SAINTE-MARIE DE MADAGASCAR.

According to *Statistique de l'instruction primaire pour l'année 1863*, there were two religious private schools, viz, 1 for boys, with 376 pupils, and 1 for girls, with 550 pupils.

MAYOTTA.

The population of Mayotta was 11,025 in 1878. The number of children between 6 and 13 was 1,206, 584 boys and 622 girls. The colony had only two mission schools in 1878, viz, 1 for boys, with 22 pupils, and 1 for girls, with 23 pupils.

NOS-BEH.

This colony has a population of about 9,000 souls, of whom 100 are Europeans. There are two religious schools, one for boys and one for girls. In 1863, the schools were attended by 48 boys and 36 girls; in 1867, by 72 boys and 62 girls; in 1878, by 163 boys and 117 girls. The schools receive an annual state subsidy of 7,000 francs. An attempt was made in 1868 to establish a lay school, but without success.

REUNION.

Population, 193,241, 126,201 natives and 67,040 immigrants; number of children under 14 years of age, 42,040, viz, 21,902 boys and 20,138 girls. The number of schools is 159, viz, 60 for boys and 99 for girls; 94 are lay schools (viz, 39 for boys and 55 for girls) and 65 religious schools (viz, 21 for boys and 44 for girls); 115 are public (viz, 52 for boys and 63 for girls) and 44 private (viz, 8 for boys and 36 for girls). The total number of teachers is 273, viz, 96 in lay schools and 177 in religious schools. This number does not include the number of private schools for girls. The number of pupils is 10,791, of whom 3,648 attend the lay schools and 7,143 the religious schools, 9,606 the public and 1,185 the private schools.

PONDICHERRY.

The archives of the administration of Pondicherry do not contain any precise statement on the condition of institutions of learning before 1866. The following data have been extracted from the *Statistique de l'instruction primaire pour l'année 1863*:

French schools.—One lay school for boys, with 1 teacher and 120 pupils; 2 religious schools for girls, with 70 Indian and 50 European pupils.

Indian schools.—Four lay schools, with 303 pupils; two charitable institutions, with 95 children.

Statistics of 1866.—Population, 253,171, viz, 2,969 Europeans and 250,202 natives. The number of children between 6 and 13 was 59,531: 31,784 boys (447 Europeans and creoles and 31,337 natives) and 27,747

girls (580 Europeans and creoles and 27,167 natives). There were, in the same year, 17 religious schools for boys, with 61 teachers and 1,048 pupils, and 15 schools for girls, with 63 teachers and 880 pupils. The above schools are supported by the colonial government. Besides these, there are 2 lay private schools for girls, with 2 teachers and 26 pupils; 10 religious private schools for boys, with 13 teachers and 260 pupils; and 2 religious private schools for girls, with 30 teachers and 109 pupils.

Statistics of 1878.—Population, 276,531, viz, 2,600 European and 273,931 natives. The number of children between 6 and 13 was 69,447: 36,460 boys (331 Europeans and creoles and 36,129 natives) and 32,987 girls (317 Europeans and creoles and 32,670 natives). The schools entirely supported by the colonial government were: 2 lay schools for boys, with 7 teachers and 171 pupils; 9 religious schools for boys, with 53 teachers and 1,481 pupils; 13 religious schools for girls, with 49 teachers and 1,226 pupils. The colonial government also gives a subsidy to one religious private school for girls, with 3 teachers and 48 pupils.

CHANDERNAGORE.

According to the *Statistique de l'instruction primaire pour l'année 1863*, Chandernagore had one religious school for boys, with 110 pupils, and one religious school for girls, with 50 pupils.

CARRICAL.

The *Statistique de l'instruction primaire pour l'année 1863* gives 7 public schools for boys, with 212 pupils; 80 private schools for boys and for both sexes, with 1,595 pupils, and 2 public schools for girls, with 194 pupils.

YANAON.

Yanaon had one religious school for boys in 1863, with 52 pupils.

MAHÉ.

In 1863 Mahé had one lay school and one religious school, with 118 pupils in all.

COCHIN CHINA.

The population of Cochin China was 1,575,202 in 1878, viz: 1,143 Europeans and 1,574,059 natives. The number of children between 6 and 13 was 208,808, viz, 103,200 boys and 105,608 girls. There were, at the same period, 19 lay schools and 14 religious schools; 18 schools were public and 15 private. The total number of pupils was 2,688, viz, 2,008 boys and 680 girls.

NEW CALEDONIA AND DEPENDENCIES.

The total population was 54,417 in 1878, of whom 35,301 were natives. The number of children under 14 was 1,459. The number of schools

for boys was 12, viz, 6 public and 6 private. The public schools had 349 pupils and the private schools 320. The girls' schools numbered 10, viz, 3 public and 7 private. The public schools had 423 pupils, and the private schools 302. The total number of pupils in all the schools is therefore 1,394.

OCEANIA AND THE ISLANDS OF THE PROTECTORATE.

The following data are from *Statistique de l'instruction primaire pour l'année 1863*: 3 public schools for boys, with 131 pupils; 2 private schools for boys, with 106 pupils; 3 public schools for girls, with 155 pupils; 2 private schools for girls, with 123 pupils; 24 public schools for both sexes, with 826 boys and 699 girls. Total number of schools, 34; total number of pupils, 2,040, viz, 1,063 boys and 977 girls.

SAINT PIERRE AND MIQUELON.

Population in 1878, 3,913; number of children between 6 and 13, 847; number of schools, 8, viz, 6 public and 2 private; number of pupils, 847.

GUADELOUPE.

In 1863, Guadeloupe had 1 public lay school for boys, with 55 pupils; 22 public religious schools for boys, with 1,654 pupils; 9 private lay schools for boys, with 244 pupils; 2 religious lay schools for boys, with 185 pupils; 1 public lay school for girls, with 35 pupils; 21 public religious schools for girls, with 1,168 pupils; 9 religious private schools for girls, with 256 pupils; 3 private lay schools for girls, with 195 pupils; and 4 private lay schools for both sexes, with 84 pupils. Total number of schools, 72; total number of pupils, 3,876.

MARTINIQUE.

The population of Martinique was 161,532 in 1878, viz, 12,625 Europeans and 148,907 natives. The number of children between 6 and 13 was 16,046, viz, 8,684 boys and 7,362 girls. The number of schools was 136; the number of teachers, 219; and the number of pupils, 11,870.

GUIANA.

According to the *Statistique de l'instruction primaire pour l'année 1863*, Guiana had 1 higher public school for boys, with 205 pupils; 1 public elementary school for boys, with 212 pupils; 1 higher public school for girls, with 331 pupils; 2 public elementary schools for girls, with 447 pupils; and 4 public schools for both sexes, with 53 boys and 50 girls. Total number of schools, 9; total number of pupils, 1,298.

SECONDARY INSTRUCTION.

71-72

199-200

SECONDARY INSTRUCTION.

Following is an abstract of the official report for 1876:¹

INTRODUCTION.

Since the creation of the University of France, in the beginning of the present century, only two complete statistical reports of secondary education have been published: the first in 1843, under the ministry of M. Villemain, and the second (for the year 1865) in 1868, under the ministry of M. Duruy.

During the last few years, and especially since 1871, a strong impetus has been given to all phases of secondary education. The special branches prescribed by the law have been inserted in the course of study; new lycées and colleges have been opened; both state and city authorities have appropriated large amounts of money for the reconstruction, enlargement, and hygienic improvement of school buildings; the modified and extended course of study allows more time for modern languages, history, and geography; scientific collections have been enlarged and completed, and the salaries of professors have been raised; finally, military exercises, more frequent gymnastic lessons, improvements in food and clothing, have aided the physical development of the pupils and more satisfactorily provided for their well being.

DEFINITION OF SECONDARY SCHOOLS IN FRANCE.

There are two kinds of secondary schools, public and private. The public secondary schools are the lycées—under the Restoration called royal colleges—and the communal colleges. The former are maintained by the state, the latter by the communes, but they may be aided by the state. In both, the instruction is classical and special. Special instruction includes the modern languages and natural sciences. No one is allowed to teach in a public secondary school unless he furnishes proof of capacity. This generally takes the form of a university degree or a certificate of capacity of the superior normal school. Although the lycées are the strongholds of the classics, great attention is paid to natural sciences and modern languages. In the communal colleges the special branches occupy still more time.

The private secondary schools are of two kinds, lay and ecclesiastical. The lay private schools are rapidly decreasing in number, while the

¹Statistique de l'enseignement secondaire en 1876. Paris, 1878.

ecclesiastical schools show an increase. The latter schools are either under the control of the bishops or the religious orders, among which the Jesuits held the chief place until their order was suppressed in France and the French colonies by a decree of the President of the Republic dated March 29, 1880. A few private secondary schools are under the control of the ministers of the non-Catholic denominations.

All the private schools are subject to government inspection and to certain state laws relative to the sanitary condition of buildings, the professional capacity of the principals, and the internal discipline.

Both public and private secondary schools admit boarders and day scholars.

PRESENT CONDITION OF THE NATIONAL LYCÉES.

The number of national lycées is 86; 81 of these establishments are in operation, the other 5, created by recent decrees, have not yet been organized.

The lycées have been established during the following periods: 1802 to 1815, 34; 1815 to 1830, 2; 1830 to 1848, 18; 1848 to 1870, 27; 1870 to 1876, 5. In 1871 the lycées of Metz, Strasburg, and Colmar ceased to belong to France. The lycée of Vanves, about two miles from Paris, is exclusively for young pupils; it is, as it were, the nursery of the lycées of Paris. Several lycées have, in their immediate vicinity, a preparatory college for young pupils, while others have them in distant parts of the cities or even in the country.

The following table shows the national lycées in alphabetical order:

Table showing the national lycées in alphabetical order; also, the dates of their establishment and the class to which they belong.

No.	National lycées.	Academic circumscription.	Year of establishment.	Classification in 1876.
1	Paris: Louis-le-Grand	Paris	1802	Unclassified.
2	Henri IV	Paris	1803	
3	Saint-Louis	Paris	1812	
4	Charlemagne	Paris	1803	
5	Fontanes	Paris	1803	
6	Vanves	Paris	1864	
7	Versailles	Paris	1806	
8	Agen	Bordeaux	1854	IV
9	Albi	Toulouse	1862	IV
10	Alençon	Caen	1846	IV
11	Alger (Algiers)	Algiers	1848	II
12	Amiens	Donai	1803	II
13	Angers	Rennes	1803	III
14	Angoulême	Poitiers	1840	II
15	Auch	Toulouse	1833-1838	IV
16	Avignon	Aix	1803	IV
17	Bar-le-Duc	Nancy	1854	IV
18	Bastia	Aix	1838	IV
19	Bayonne	Bordeaux	1874	Not yet classified.

Table showing the national lycées in alphabetical order, &c.—Continued.

No.	National lycées.	Academic circumscription.	Year of establishment.	Classification in 1876.
20	Belfort	Besançon	1873	IV
21	Besançon	Besançon	1803	II
22	Bordeaux	Bordeaux	1803	I
23	Bourg	Lyon	1854	IV
24	Bourges	Paris	1803	IV
25	Brest	Rennes	1848	II
26	Caen	Caen	1803	II
27	Cahors	Toulouse	1803	IV
28	Carcassonne	Montpellier	1853	III
29	Chambéry	Chambéry	1860	IV
30	Charleville	Douai	1876	{ Not yet classified.
31	Châteauroux	Poitiers	1853	
32	Chaumont	Dijon	1843	IV
33	Clermont	Clermont	1803	II
34	Constantine	Algeria	1876	{ Not yet classified.
35	Coutances	Caen	1853	
36	Dijon	Dijon	1803	II
37	Douai	Douai	1803	II
38	Évreux	Caen	1854	IV
39	Grenoble	Grenoble	1803	III
40	Guéret	Clermont	1869	{ Not yet classified.
41	Havre (Le)	Caen	1861	
42	Laval	Rennes	1841	IV
43	Lille	Douai	1845	II
44	Limoges	Poitiers	1803	III
45	Lons-le-Saunier	Besançon	1863	IV
46	Lorient	Rennes	1863	III
47	Lyon	Lyon	1803	I
48	Mâcon	Lyon	1841	IV
49	Mans (Le)	Caen	1850	IV
50	Marseille	Aix	1802	I
51	Montauban	Toulouse	1864	IV
52	Mont-de-Marsan	Bordeaux	1859	IV
53	Montpellier	Montpellier	1803	I
54	Moulins	Clermont	1802	III
55	Nancy	Nancy	1803	I
56	Nantes	Rennes	1803	II
57	Nevers	Dijon	1860	IV
58	Nice	Aix	1860	III
59	Nîmes	Montpellier	1803	II
60	Niort	Poitiers	1858	IV
61	Orléans	Paris	1803	III
62	Pau	Bordeaux	1803	III
63	Périgueux	Bordeaux	1845	IV
64	Poitiers	Poitiers	1803	III
65	Pontivy	Rennes	1803	IV
66	Puy (Le)	Clermont	1835	IV
67	Reims	Paris	1803	II
68	Rennes	Rennes	1803	III
69	Rochelle (La)	Poitiers	1843	IV
70	Roche-sur-Yon (La)	Poitiers	1838	IV
71	Rodez	Toulouse	1803	IV
72	Rouen	Caen	1803	I
73	Saint-Brieuc	Rennes	1848	IV
74	Saint-Étienne	Lyons	1840	IV
75	Saint-Omer	Douai	1845	IV
76	Saint-Quentin	Douai	1853	III
77	Sens	Dijon	1854	VN

Table showing the national lycées in alphabetical order, &c.—Continued.

No.	National lycées.	Academic circumscription.	Year of establishment.	Classification in 1876.
78	Tarbes	Toul	1853	IV
79	Toulon	Aix	1861	III
80	Toulouse	Toulouse	1803	I
81	Tournon	Grenoble	1820	IV
82	Tours	Poitiers	1830	III
83	Troyes	Dijon	1853	III
84	Valenciennes	Donai	1875	{ Not yet classified.
85	Vendôme	Paris	1847	
86	Vesoul	Besançon	1859	IV

Income and expenditure of the lycées.—The total income of the lycées in 1876 amounted to 24,028,867 francs. Of this amount, 15,803,736 francs were derived from fees, and the rest from state, departmental, and communal subsidies, &c.

The charges for board differ according to the size of the city and the age of the pupil. At Paris, the charges are 1,000 francs in the elementary division, 1,200 francs in the grammar division, and 1,400 to 1,500 francs in the superior division. At Lyons the charges are, for the same grades, 900, 950, and 1,000 to 1,100 francs; at Orléans, 750, 800, and 850 francs; at Vendôme, 650, 700, and 750 francs; at Le Puy, 550, 600, and 650 francs.

The tuition fees are from 110 to 300 francs in the larger and from 70 to 140 francs in the smaller cities.

The total expenditure in 1876 amounted to 23,359,384 francs. Of this amount, 11,477,627 francs were for salaries.

Functionaries of the national lycées.—The 2,349 functionaries of the national lycées are divided into the personnel of the administration and the teaching corps. The administration is in the hands of head masters (proviseurs), chaplains (aumôniers), stewards (économés), and general superintendents (surveillants généraux). They take no part in teaching. Their duty is to admit the pupils, correspond with the parents, keep the accounts, manage the household, and maintain the discipline of the school.

The teaching corps consists of persons of different degrees of rank, for which no corresponding names can be given. The following are the titles of teachers of the lycées, with an approximate English translation: (1) Professeurs titulaires (full professors). (2) Professeurs divisionnaires (division professors). (3) Chargés de cours de l'enseignement classique (special teachers of the classics). (4) Professeurs agrégés de l'enseignement spécial (professors agrégés of special instruction). The agrégé is an instructor in the lycées or universities, originally engaged to fill a sudden vacancy in the corps of teachers, but now occupying a

position preparatory to the titular or full professorship. In the lycée his rank is equivalent to that of regular teacher; in the university he is only adjunct professor (*professeur suppléant*), and can obtain the full title only by higher qualifications, such as the rank of doctor or of member of the Institute. The *agrégé* receives his rank in a special branch, for which he must pass a severe examination, and he can teach no other branch until he has passed an examination on the same. (5) *Chargés de cours de langues vivantes qui ne sont ni licenciés ni pourvus du certificat d'aptitude* (unlicensed teachers of modern languages). (6) *Maitres répétiteurs* (ushers). (7) *Maitres auxiliaires* (supplementary teachers). (8) In addition to the above there is in each lycée a *censeur*, or superintendent of studies and discipline.

Besides these, the lycées employ several elementary teachers for the lower classes and teachers of gymnastics, singing, and drawing.

Salaries of functionaries of the lycées.—The following table shows the salaries of all the functionaries of the national lycées in 1876:

Functionaries of national lycées.	Classes.	Lycées of—		Lycées of the departments.			
		Paris.	Versailles.	Class I.	Class II.	Class III.	Class IV.
Head masters (proviseurs):		<i>Francs.</i>	<i>Francs.</i>	<i>Francs.</i>	<i>Francs.</i>	<i>Francs.</i>	<i>Francs.</i>
At Paris and Versailles.....		9,000	9,000				
In the departments.....	I			7,500	7,000	6,500	6,000
	II			7,000	6,500	6,000	5,500
Censors (censeurs):							
At Paris and Versailles.....	I	8,000	7,500				
In the departments.....	II						
	I			5,600	4,600	4,200	4,000
	II			5,400	4,400	4,000	3,800
	III			5,200	4,200	3,800	3,600
Full professors (professeurs titulaires).	I	7,500	7,000	5,000	4,000	3,600	3,400
	II	7,000	6,500	4,800	3,800	3,400	3,200
	III	6,500	6,000	4,600	3,600	3,200	3,000
	IV	6,000	5,500				
Divisional professors (professeurs divisionnaires).	I	5,500	5,000	4,800	3,800	3,400	3,200
	II	5,000	4,500	4,400	3,400	3,000	2,800
	III			4,000	3,000	2,600	2,400
Special teachers of the classics (chargés de cours de l'enseignement classique).	I			4,800	3,800	3,400	3,200
	II			4,400	3,400	3,000	2,800
	III			4,000	3,000	2,600	2,400
Professors agrégés for special branches (professeurs agrégés de l'enseignement spécial).	I			4,600	3,600	3,200	3,000
	II			4,200	3,200	2,800	2,600
	III			3,800	2,800	2,400	2,200
Unlicensed teachers of modern languages (chargés de cours de langues vivantes).	I			3,500	3,000	2,800	2,700
	II			3,000	2,500	2,300	2,200
	III			2,700	2,200	2,000	2,000
Professors of the two lower classes (seventh and eighth).		2,500	2,500	2,000	2,000	2,000	2,000
Elementary teachers		1,400	1,400	1,000	1,000	1,000	1,000
Ushers (maitres répétiteurs)		1,500	1,500	1,200	1,200	1,200	1,200
Supplementary teachers (maitres auxiliaires).				400	400	400	400
Drawing teachers		2,500	2,500	2,000	2,000	2,000	2,000

Chaplains receive from 2,000 to 4,500 francs; stewards, from 2,400 to 3,700 francs; and general superintendents, from 1,800 to 3,000 francs.

Table showing the number of students in the lycées and the preparatory colleges attached to them in 1876.

Lycées.	Number of—		Total.
	Boarders.	Day scholars.	
Louis-le-Grand, Paris	606	617	1, 223
Henri IV, Paris	503	273	776
Saint-Louis, Paris	559	456	1, 015
Fontanes, Paris	268	1, 328	1, 596
Charlemagne, Paris		837	837
Vanves, Paris	520	26	546
Versailles, Paris	410	291	701
Agen	190	117	307
Albi	161	173	334
Alençon	173	145	318
Alger (Algiers)	375	554	929
Amiens	299	154	453
Angers	177	204	381
Angoulême	353	263	616
Auch	191	191	382
Avignon	125	105	230
Bar-le-Duc	263	157	420
Bastia	136	338	474
Belfort	389	169	558
Besançon	217	271	488
Bordeaux (lycée)	370	430	800
Bordeaux (preparatory college)	202		202
Bourg	244	91	335
Bourges	184	142	326
Brest	237	364	601
Caen	305	258	563
Cahors	130	116	246
Carcassonne	445	153	598
Chambéry	107	187	294
Châteauroux	152	115	267
Chaumont	171	128	299
Clermont	311	222	533
Contances	245	128	373
Dijon	235	220	455
Donai	353	127	480
Évreux	196	68	264
Grenoble	216	229	445
Le Havre	204	232	436
Laval	310	134	444
Lille	367	328	695
Limoges	168	271	439
Lons-le-Saunier	188	109	297
Lorient	116	346	462
Lyon (lycée)	408	704	1, 112
Lyon (preparatory college)	173	8	181
Mâcon	177	137	314
Mans (Le)	182	199	381
Marseilles (lycée)	312	591	903
Marseilles (preparatory college)	70		70
Montauban	127	173	300
Mont de Marsan (lycée)	313	35	348
Mont de Marsan (preparatory college)	52	28	80
Montpellier (lycée)	262	351	613

Table showing the number of students, &c.—Continued.

Lycées.	Number of—		Total.
	Boarders.	Day scholars.	
Montpellier (preparatory college).....	264	46	310
Moulins	364	127	491
Nancy	380	399	779
Nantes	249	307	556
Nevers	208	162	370
Nice	236	282	518
Nîmes	232	364	596
Niort	197	169	366
Orléans	243	232	475
Pau	206	238	444
Périgueux	186	187	373
Poitiers	206	189	395
Pontivy	108	175	283
Puy (Le)	156	135	291
Reims	318	207	525
Rennes	217	305	522
Rochelle (La)	158	171	329
Roche-sur-Yon (La)	97	112	209
Rodez	155	120	275
Rouen	518	341	859
Saint-Brieuc	159	117	276
Saint-Étienne	213	231	444
Saint-Omer	197	119	316
Saint-Quentin	202	219	421
Sens	177	62	239
Tarbes	142	157	299
Toulon	159	322	481
Toulouse	485	615	1,100
Tournon	136	68	204
Tours	243	193	436
Troyes	238	171	409
Vendôme	123	85	208
Vesoul	211	155	366
Total	20,920	20,075	40,995

Classification of pupils.—Of the 40,995 pupils of the lycées and their preparatory colleges, 32,299 were in the classical department and 8,696 in the special or modern department.

The following table shows the number of lycées and the number of pupils from 1809 to 1876:

Years.	Number of lycées.	Number of pupils.	Years.	Number of lycées.	Number of pupils.	Years.	Number of lycées.	Number of pupils.
1809	35	9,068	1815	36	9,265	1821	33	12,058
1810	36	9,310	1816	36	8,613	1822	33	12,114
1811	36	10,926	1817	36	9,754	1823	33	12,295
1812	36	12,185	1818	36	10,640	1824	33	12,519
1813	36	14,492	1819	36	11,064	1825	33	13,321
1814	36	12,110	1820	33	11,981	1826	33	13,682

Years.	Number of lycées.	Number of pupils.	Years.	Number of lycées.	Number of pupils.	Years.	Number of lycées.	Number of pupils.
1827	32	13,904	1844	48	20,082	1861	73	29,375
1828	32	14,553	1845	50	21,692	1862	75	30,330
1829	32	15,087	1846	51	22,311	1863	75	30,669
1830	32	14,920	1847	53	23,207	1864	76	31,615
1831	39	14,451	1848	56	22,624	1865	77	32,630
1832	39	13,598	1849	56	21,938	1866	78	34,435
1833	39	14,101	1850	56	20,453	1867	81	36,112
1834	40	14,127	1851	57	19,269	1868	82	37,725
1835	41	14,171	1852	58	19,543	1869	82	37,691
1836	41	14,869	1853	61	20,361	1870	83	36,651
1837	41	15,151	1854	64	21,623	1871	80	35,018
1838	41	15,130	1855	64	22,746	1872	80	36,756
1839	42	16,252	1856	65	24,752	1873	81	37,714
1840	44	16,952	1857	68	26,118	1874	81	38,066
1841	44	17,277	1858	69	26,422	1875	81	38,492
1842	46	18,697	1859	70	26,705	1876	81	40,995
1843	48	19,519	1860	72	27,372			

Course of study.—The course of study in all the lycées is the same. The programmes are drawn up and text books selected by the ministry of public instruction.

The present course of study was approved July 23, 1874, with the exception of that part relating to religious instruction and to the special course of higher mathematics, both of which were regulated by decree of March 24, 1865. According to the decree of 1865 religious instruction is to be given one hour a week in each class. Day scholars may attend if parents so desire.

The special course of higher mathematics consists of arithmetic, algebra, geometry, trigonometry, cosmography, mechanics, statics, physics, and chemistry.

The following is the course of study approved by decree of July 23, 1874:

ELEMENTARY DIVISION.

Preparatory or ninth class. French: reading, writing, orthography, and elementary grammar, Bible history and geography of the Holy Land, elements of physical geography of France and of the department, and arithmetic.

Eighth class. French: reading, writing, recitation, grammar, and orthography; Latin: declensions and conjugations, explanation of Latin authors, translations from Latin into French and vice versa; modern languages (German or English): elements of grammar, reading, explanation of easy authors, formation of easy sentences, sacred history; geography: the five parts of the world; practical arithmetic: weights and measures.

Seventh class. French: writing, recitation, explanation of words and sentences, grammar, and orthography; Latin: grammar, review of the elements, syntax, explanation of authors, translations; modern languages (German or English): elements of grammar, explanation and recitation of easy authors, reading and conversation; summary history of France; elementary geography of France; practical arithmetic continued: decimals, the metric system.

Text books for the elementary division are Évangiles des dimanches, Morceaux

choisis des auteurs classiques, Fénelon's Fables, La Fontaine's Fables, Epitome Historiæ Sacræ, De Viris Illustribus Urbis Romæ, Appendix de Diis et Heroibus Poeticis.

GRAMMAR DIVISION.

Sixth class. French: grammar, explanation and recitation of authors, reading, orthography, composition; Latin: grammar, review of the elements, easy syntax, reading of Rollin's maxims, Selectæ e Profanis Scriptoribus Historiæ, Phædrus's Fables, and translations; Greek: grammar, declensions and conjugations, explanation of authors, reading of Æsop's fables, translations; modern languages (German or English): grammar continued, explanation and recitation of authors, reading and conversation, translations; ancient history; geography of Asia, Africa, America, and Australia; practical arithmetic continued.

Fifth class. French: grammar, explanation and recitation of authors, reading of Fénelon's Dialogues des morts and Racine's Esther, orthography and composition; Latin: review of grammar, syntax, explanation and recitation of Selectæ e Profanis Scriptoribus Historiæ, Justinus, Cornelius Nepos, Ovid's Metamorphoses, with translations; Greek: declensions and conjugations, elements of syntax, reading of extracts from easy authors, translations; modern languages (English or German): grammar continued, explanation and recitation of authors, reading and conversation, translations; history of ancient Greece; general geography of Europe, except France; practical arithmetic continued.

Fourth class. French: grammar, explanation and recitation of authors, reading of Fénelon's Télémaque and Racine's Athalie, orthography and composition; Latin: review, elements of Latin prosody, reading and explanation of Cicero's select letters, Cæsar's De Bello Gallico, Quintus Curtius, Ovid's Metamorphoses, Virgil's Æneid (books I and II), and translations; Greek: grammar reviewed and continued, reading and explanation of Greek authors (Gospel of St. Luke, Xenophon, Plutarch, Herodotus), translations and exercises; modern languages (German or English): grammar continued, reading and explanation of authors, conversation, translations; ancient Roman history; geography of France; arithmetic; first principles of geometry.

SUPERIOR DIVISION.

Third class. French: language and literature, reading of selections from Voltaire's Charles XII, Montesquien's Considérations sur la grandeur et la décadence des Romains, and Boileau's Satires and Épisodes du Lutrin, with composition and analysis; Latin: Review of grammar, prosody, reading and explanation of Cicero (Pro Archia Poeta, De Signis, De Suppliciis), Sallust, Terence, Virgil, translations; Greek: review of grammar, reading and explanation of Isocrates, Plutarch, Lucian, Herodotus, Homer, and selections from the discourses of the Greek fathers, translations; modern languages (German or English): grammar (review of syntax, formation of words), elements of prosody, reading and explanation of authors and conversations, dictations, translations; history of Europe from the year 395 to 1270; geography of Europe; arithmetic; geometry.

Second class. French: language and literature, reading and explanation of Bossuet (Discours sur l'histoire universelle), La Bruyère, Massillon (Petit Carême), Boileau (Épîtres), and selections from other authors, with composition and analysis of these; Latin: explanation and recitation of Narrationes, Cicero (In Catilinam, De Senectute, De Amicitia, Somnium Scipionis), Tacitus (Agricola), Virgil, Horace's Odes, selections from the writings of the Latin fathers, translations and compositions in prose and poetry; Greek: explanation and recitation of Demosthenes, Plato, Homer, and Euripides, and translations; modern languages (German or English): grammar (idioms, proverbs), elements of prosody, reading and explanation of authors, conversation, oral and written translations and compositions; history of Europe from 1270 to 1610; geography of Asia, Africa, America, and Australia; algebra; geometry; natural history.

Class in rhetoric. French: elements of rhetoric, literature, reading of Pascal (Pensées), Bossuet (Oraisons funèbres), La Bruyère, Fénelon (Lettre à l'Académie française, Sermon pour l'Épiphanie), Buffon (selections, Discours sur le style), Voltaire (Siècle de Louis XIV), Boileau (Art poétique), La Fontaine's Fables, discourses and compositions, and analysis; Latin: reading and explanation of the Conciones, Cicero, Tacitus, Virgil, Horace, Lucretius, Plautus, translations, compositions in prose and poetry, discourses, analysis; Greek: reading and explanation of Demosthenes, Plato, Aristotle, Homer, Sophocles, Aristophanes, translations and analysis; modern languages (German or English): composition, reading, conversation, oral and written translations; history of Europe from 1610 to 1789, with a brief review of French history previous to the year 1610; geography of France and her colonies; general review of geography; geometry; cosmography.

Class of philosophy. Object of philosophy, its principal divisions, and its relations with other sciences; psychology; logic; metaphysics; moral philosophy; history of philosophy; Latin and French dissertations; reading of philosophical works in Greek, Latin, and French; modern languages, the same as in the class of rhetoric; contemporary history and geography; review of arithmetic, algebra, geometry, and cosmography; physics; chemistry; natural history.

Drawing, singing, and gymnastics are obligatory in all the classes of the lycées.

PRESENT CONDITION OF COMMUNAL COLLEGES.

The number of communal colleges was 252 in 1876, against 251 in 1865. Their total income in 1876 amounted to 13,150,687 francs and the expenditure to 12,358,401 francs.

The charges for board in the communal colleges are, at Paris, 629 francs; at Bordeaux, 516 francs; at Toulouse, 468 francs. The tuition fees are, at Paris, 104 francs; at Bordeaux, 108 francs; at Toulouse, 102 francs.

The state subsidies amounted to 473,558 francs in 1876 and the communal subsidies to 3,492,801 francs.

The communal colleges do not all have the higher classes. Some have all except the highest class, some the two or three lowest classes, and three have only the preparatory class. Only 142 of the 251 colleges have a complete course and prepare for the degree of bachelor of letters and bachelor of science.

Salaries of teachers.—The principals receive from 2,600 to 7,000 francs, but if the college is managed on their own account they have only the profits derived from the boarding establishment.

The salaries of full professors range from 6,000 to 7,500 francs; of division professors, from 5,000 to 5,500 francs; of professors of physics, from 1,400 to 3,000 francs; of elementary professors, from 500 to 2,500 francs; of teachers of modern languages, from 1,000 to 3,000 francs.

The teaching force of the communal colleges consists of 252 principals and 2,650 professors and assistants.

The total number of pupils of the communal colleges was 38,236 at the end of 1876. Of this number, 14,992 were in the classical department, 14,012 in the department of modern languages and natural sciences, and 9,232 in the primary department. In 1865, there were 33,038 pupils,

viz, 15,943 in the classical, 11,880 in the modern language, and 5,215 in the primary department.

The course of study in the communal colleges is substantially the same as in the lycées, but the instruction in the latter is generally considered more thorough than in the former.

PRIVATE SECONDARY SCHOOLS.

The number of private secondary schools was 803 in 1876 against 935 in 1865. Of these 803 schools, 494 were under lay and 309 under ecclesiastical control. There is an increase of 31 ecclesiastical and a decrease of 163 lay institutions since 1865.

The total number of pupils in 1876 was 78,065, against 77,906 in 1865. Of the 78,065 pupils in 1876, 31,249 were in lay and 46,816 in ecclesiastical institutions. The decrease in the number of pupils in lay schools amounts to 11,760 since 1865, while the increase in the ecclesiastical schools during the same period amounts to 11,919.

Of the ecclesiastical secondary schools the different religious orders had 89 in 1876, against 43 in 1865. The total number of pupils in these 89 schools was 19,961.

The following departments had the largest number of private secondary schools in 1876: Seine, 157; Bouches-du-Rhône, 39; Rhône, 34; Gironde, 33; Seine-et-Oise, 25; Haute-Garonne, 23; Nord, 20; Pas-de-Calais, 19; Seine-Inférieure, 19; Hérault, 16; Aisne, 15.

Seventy-two of the 803 private secondary schools received a subsidy from the communes.

The total number of teachers in private secondary schools was 6,261 in 1876, viz, 2,500 (115 of whom were priests) in the lay and 3,761 (2,946 of whom were priests) in the ecclesiastical institutions.

The average charges for board and tuition were in lay institutions 654 francs and in ecclesiastical institutions 343 francs a year. Half boarders paid 336 in lay and 342 francs in ecclesiastical institutions; day scholars, 119 francs in lay and 113 in ecclesiastical institutions.

Table showing the total expenditure for secondary education in 1876.

Amounts contributed by—	Francs.
The state	5,568,336
Departments	468,272
Communes	4,280,247
Families	65,605,929
Total	75,922,784

In 11 departments the expenses exceeded 1,000,000 francs:

Departments.	Francs.
Seine	20,182,431
Nord	2,699,396
Gironde	2,689,758
Rhône	1,892,264
Haute-Garonne	1,837,678
Pas-de-Calais	1,550,662
Bouches-du-Rhône	1,553,150
Seine-Inférieure	1,420,509
Somme	1,392,501
Seine-et-Oise	1,309,993
Hérault	1,268,205

In 21 departments the expenses for secondary education ranged from 600,000 to 1,000,000 francs; in 18 departments, from 500,000 to 600,000 francs; in 25 departments, from 304,000 to 500,000 francs; in 13 departments, from 100,000 to 300,000 francs; in 2 departments, Lozère and Hautes-Alpes, the expenses were less than 100,000 francs.

The total expenditure for secondary education in France was only 64,464,573 francs in 1865. There was thus an increase in 1876 of 11,458,211 francs.

The average cost for boarders in lycées was 753 francs, in the communal colleges 518 francs, in private lay schools 654 francs, and in private ecclesiastical schools 543 francs. The average tuition fees amounted to 113 francs in the lycées, 72 francs in the communal colleges, 119 francs in the lay schools, and 133 francs in the ecclesiastical schools.

COMPARISON OF THE CONDITION OF PUBLIC SECONDARY SCHOOLS IN 1865 AND IN 1876.

In 1865 the number of establishments was 328, 77 lycées and 251 colleges; in 1876 their number was 333, 81 lycées and 252 communal colleges. There is thus an increase of 5 establishments, 4 lycées and 1 college. Three lycées and 15 colleges were lost through the Franco-Prussian war. The number of pupils in 1865 was 65,668, 30,728 boarders and 34,940 day scholars; in 1876 the number was 79,231, 36,472 boarders and 42,759 day scholars. There were thus, on an average, 200 pupils for every school in 1865 and 238 in 1876. The number of pupils who received gratuitous instruction was 3,565 in 1865 and 7,542 in 1876.

COMPARISON OF PUBLIC AND PRIVATE SECONDARY SCHOOLS.

The total number of secondary schools in France was 1,136 in 1876, viz, 81 lycées, 252 communal colleges, 494 private lay schools, and 309 private ecclesiastical schools. These institutions had 153,324 pupils: in lycées, 37,477; in colleges, 37,782; in private lay schools, 31,249; in private ecclesiastical schools, 46,816.

In the department of the Seine there is 1 secondary school to every 14,700 inhabitants; Bouches-du-Rhône, 1 to 12,939; Basses-Alpes, 1 to 15,129; Hérault, 1 to 17,802; Haut-Rhin, 1 to 17,150; Haute-Garonne, 1 to 18,374; Alpes-Maritimes, 1 to 18,509; Rhône, 1 to 20,146; Gironde, 1 to 19,871.

In some departments secondary education is not so well developed. Haute-Loire has 1 secondary school to every 156,860 inhabitants; Loire, 1 to 147,653; Vendée, 1 to 102,945; Allier, 1 to 101,445; Cher, 1 to 86,403; Finistère, 1 to 83,263; Côtes-du-Nord, 1 to 78,869; Cantal, 1 to 77,028; Corrèze, 1 to 77,881; Ain, 1 to 73,092.

As the population of France (including Algiers) in 1873 was 37,337,669 and the number of pupils of secondary schools 153,324, there was 1 pupil to every 243 inhabitants.

RECENT CHANGES IN THE PROGRAMME OF SECONDARY SCHOOLS.

The present government has in view the reform of all grades of schools. For the reform of primary schools two bills have passed the Chambers, the bill making education obligatory and gratuitous and the bill requiring every teacher to be provided with a government certificate of capacity. A third bill, making primary education unsectarian, is still pending. Secondary instruction has been improved by several ministerial decrees, the most recent of which is that of August 2, 1880, in which the minister makes the programme prepared by the new superior council of public instruction obligatory for the lycées and communal colleges. Following is a synopsis of the programmes adopted by the superior council of public instruction :

After having prepared the course of study for the secondary schools, the superior council of public instruction has laid down the following principles on which the studies are henceforth to be conducted :

(1) In all the courses of study and from the first start in the lower classes, the object of the instruction shall be to develop the judgment of the child as well as his memory and to drill him in expressing his thoughts.

(2) The study of grammar should not be left to the diversity of methods and books. The pupil must have, for each period and for each language, a grammar adapted to his age and knowledge.

(3) In the elementary classes only the indispensable rules are to be studied. This is in conformity with the principle that grammar must be learned through the language, and not the language through the grammar. The teacher must go from the text to the rule, from the example to the formula, from the concrete to the abstract.

(4) For the same reasons an end must be put to the abuse of writing grammatical analyses, and, in general, to the abuse of all written exercises which may, with more advantage, be replaced by oral exercises, illustrations on the blackboard, interrogations, explanations of reading lessons and comments on the same. In the logical analysis the teacher must endeavor to distinguish above all the subject, the verb, and the attribute, and to point out the principal and subordinate clauses.

(5) During the first three school years the French language must be studied in connection with the other elementary branches of the programme. The various oral and written French exercises will greatly facilitate the study of Latin in the sixth class (first year in Latin).

(6) The Latin grammar for the lower classes must also be very simple. It is no longer to be a collection of rules indicating how to translate French into Latin. The grammar should, as much as possible, give the reason for each rule. In Latin, and later in Greek, just as previously in French, the rules must be derived from the classical text instead of reading this text after the whole supply of abstract rules has been exhausted. The principal object is to learn to translate from Latin into French; the translation from French into Latin is to be regarded chiefly as a means of verification.

(7) Oral translations from the French into Latin, under the direction of the teacher and during the class, must, therefore, be connected with the written translation made by the pupil alone. In a measure, as the pupils advance in age they do not require so much assistance and must be accustomed to make personal efforts. The teacher may also read slowly a carefully prepared text to his pupils and require them to translate it into Latin as fast as he reads it.

(8) The true object of Latin composition and translation from French into Latin being to ascertain and increase results acquired, thorough explanation of the classical text shall henceforth occupy the largest space in literary studies. As soon, however, as the pupil is sufficiently familiar with Latin it is useful to make him sometimes express his ideas in that language. For the Latin narrations in the second class and the discourses in the class of rhetoric there shall, therefore, be shorter Latin compositions on various subjects and at briefer intervals. The French compositions in the different grades shall no longer consist exclusively of narrations, discourses, and letters. All subjects which tend to stimulate reflection, to form the taste, to strengthen the judgment, shall be used in the exercises of the class. In the rhetoric class the subjects for composition shall be especially of a literary character.

(9) Literal translations should be the exception and only made use of for a few passages.

(10) The use of too complete and detailed dictionaries should be considerably restricted; they prevent the pupil from making efforts himself, since they contain the solution of almost all the difficulties and even the translation of many passages. Small dictionaries ought to suffice. Good translations of the classical text may be tolerated.

(11) The practice of composing Latin verses shall henceforth be discontinued. More stress shall be laid on the study of French versification. The most talented pupils may, however, be allowed to write Latin verses.

(12) The study of history in the higher classes should tend more to develop knowledge of the institutions and customs of nations and concern itself a little less with their wars. The history of France should show, above all, the general development of French institutions from which our modern society has sprung, and it should inspire the pupil with respect and attachment for the principles upon which this society is founded.

(13) Written exercises are to be reduced in extent. Oral lessons and interrogations should occupy most of the time in all the classes.

(14) The council thinks that the majority of modifications to be introduced will require more direct participation on the part of the pupil and more frequent intervention on the part of the teacher during the lessons. The council, therefore, recommends a subdivision of the larger classes of the lycées.

(15) The council recommends that the lessons in history and in the sciences be given by special professors as soon as the administration shall have a sufficient number of teachers and adequate resources.

The following is the course of studies prepared for French lycées and communal colleges by the superior council of public instruction, and

made obligatory by M. Jules Ferry, minister of public instruction and fine arts, August 2, 1880:

COURSE OF STUDIES—ELEMENTARY DIVISION.

Preparatory class (for pupils 8 years old).

French language (10 hours): Reading, writing, recitation, explanation of each word and sentence; grammar, explanation of the most elementary rules; oral and written language lessons and spelling; formation of sentences; comments on reading lessons.

History (2 hours): Biographies of celebrated men of ancient and modern times; repetition by the pupils of short historical accounts given by the teacher.

Geography (2 hours): Elementary notions of natural geography. (The teacher will define, and make the pupils understand by means of descriptions and examples, the meaning of the principal terms of physical geography, and indicate on the globe and the map the situation of the continents and especially the position of Europe and France.) Elements of physical geography of France, especially of the commune and the department.

Sciences (4 hours): Whole numbers; mental arithmetic; object lessons.

Modern languages (German or English, 4 hours): Readers for beginners.

Drawing (2 hours): Elements of drawing.

Eighth class (for pupils 9 years old).

French language (10 hours): Reading, writing, recitation, explanation of each word and sentence; grammar, application of the rules; exercises of style and spelling; comments on reading lessons.

History (2 hours): Summary of the history of France to the accession of Henry IV; simple historical accounts by the teacher and repetition by the pupils.

Geography (2 hours): Elementary geography of the five parts of the world; principal voyages of discovery; celebrated navigators.

Sciences (4 hours): Arithmetic of whole numbers; mental arithmetic; elements of plane geometry; elements of the natural history of animals and plants.

Modern languages (German or English, 4 hours): Elements of grammar; reading and conversation; explanation and recitation of easy authors; formation of easy sentences. *German:* Selections of prose and poetry. *English:* Selections, Miss Edgeworth's select tales.

Drawing (2 hours).

Seventh class (pupils 10 years old).

French language (8 hours): Reading, writing, recitation, explanation of every word and sentence; grammar; language lessons and spelling; easy exercises in composition and written analysis of oral lessons in history.

History (2 hours): History of France from the accession of Henry IV to our times; historical accounts by the teacher and repetition by the class, either oral or in writing.

Geography (2 hours): Elementary geography of France.

Sciences (4 hours): Arithmetic of whole numbers and decimal numbers; the metric system; geometrical figures; solids, explained by means of relief models; elements of the natural history of the soil and stones; elements of experimental sciences.

Modern languages (4 hours): Elements of grammar; explanation and recitation of easy authors; reading and conversation; formation of sentences. *German:* Selections Krummacher's Parabeln. *English:* Selections; Day's Sandford and Merton; Miss Edgeworth's select tales.

Drawing (2 hours).

After the completion of the course in the seventh class the pupils are examined for a higher grade.

GRAMMAR DIVISION.

Sixth class (pupils 11 years old).

French language (3 hours): Grammar; reading, recitation, and explanation of French authors; selections, prose and poetry; La Fontaine's Fables; language lessons and spelling; easy compositions.

Latin (10 hours): Grammar; Latin prosody; recitation and explanation of easy Latin authors; De Viris Illustribus Romæ; translations into Latin, especially oral; translations from Latin into French. Much time must be devoted to the preparation and explanation of the Latin text.

History (2 hours): Ancient history of eastern nations; ancient geography.

Geography (1 hour): General geography of Europe and the Mediterranean basin.

Sciences (3 hours): Arithmetic; fractions; geometry; elementary instruction respecting the sphere; elements of physics and chemistry.

Modern languages (3 hours): Grammar; explanation and recitation of authors; reading and conversation; translations from the French into the foreign tongue, especially oral; translations from the foreign tongue into French, especially oral. *German authors:* Selections; Campe: Robinson der Jüngere; Herder and Liebeskind: Palmblätter; Musæus: Sammlung von Erzählungen. *English authors:* Miss Edgeworth's select tales; Aiken and Barbauld: Evenings at Home; Miss Corner: History of England.

Drawing (2 hours): Graphic drawing (beyond the 22 regular school hours).

Fifth class (pupils 12 years old).

French (3 hours): Reading, explanation, and recitation of French authors; selections, prose and poetry; Fénelon: Télémaque; Buffon: selections; Racine: Esther; Boileau: Épisodes du Lutrin, Satires; language lessons and spelling; easy compositions.

Latin (10 hours): Grammar; review of the elements, syntax completed; etymology; prosody; explanation and recitation of Latin authors; selections; Phædrus: select fables; Cornelius Nepos; translations from French into Latin, especially oral; translations from Latin into French; brief study of literary history, in connection with the explanation of texts.

History (2 hours): History of ancient Greece; ancient geography.

Geography (1 hour): Geography of Africa, Asia, America, and Australia.

Sciences (4 hours): Practical arithmetic; elements of commercial arithmetic; geometry, measurement of surfaces and of simple volumes; zoölogy.

Modern languages (3 hours): Grammar continued; explanation and recitation of authors; reading and conversation; translations from French into foreign tongues and from foreign tongues into French. *German authors:* Selections; Niebuhr: Helden-geschichte Griechenlands; Grimm: Volkserzählungen; Andersen: Kindermärchen. *English authors:* Selections; Walter Scott: Tales of a Grandfather; Hughes: Tom Brown's School Days at Rugby; Captain Cook's travels; Miss Corner: History of Greece.

Drawing (2 hours beyond the 22 regular school hours).

Fourth class (pupils 13 years old).

French (3 hours): Reading: explanation of French authors; elements of French etymology; laws governing the formation of French words; words of popular and words of learned origin; selections, prose and poetry; Mme. de Sévigné: Lettres choisies; Voltaire: Charles XII; Racine: Athalie; Boileau: language lessons and spelling; brief study of literary history, in connection with the reading of authors; French composition.

Latin (6 hours): Review of grammar; continuation of exercises on the vocabulary; elements of prosody; explanation and recitation of Latin authors; Cæsar: De Bello Gallico; Quintus Curtius; Virgil: Æneid (books I and II); Ovid: Metamorphoses;

oral and written translations from French into Latin; translations from Latin into French; elements of literary history in connection with the reading of authors.

Greek (6 hours): Grammar: first elements; easy authors; selections; translations from French into Greek.

History (2 hours): Roman history.

Geography (1 hour): Geography of France.

Sciences (6 hours): Arithmetic, elements; plane geometry: first elements; geology and botany.

Modern languages (2 hours): *German authors*: Selections; Lessing's Fabeln; Benedix: Haustheater; Kotzebue: Die kleine deutsche Stadt, Bauer und Städter; Lessing: Minna von Barnhelm. *English authors*: Selections; Daniel Defoe's Robinson Crusoe; Irving: Travels of Christopher Columbus; Pope: Windsor Forest; Miss Corner: History of Rome.

Drawing (2 hours beyond the 22 regular school hours).

After the completion of the course in the fourth class an examination for a higher grade takes place.

HIGHER DIVISION.

Third class (pupils 14 years old).

French (3 hours): Study of the French language; laws governing the formation of French words; French prosody; reading, explanation, and recitation of French authors; selections of French prose and poetry of the sixteenth, seventeenth, eighteenth, and nineteenth centuries; Bossuet: Discours sur l'histoire universelle (part III); Montesquieu: Grandeur et décadence des Romains; Corneille: Horace, Cinna; Racine: Andromaque, Les Plaideurs; French exercises and compositions; analysis of French authors; elements of French bibliography.

Latin (5 hours): Review of the grammar; Latin prosody; metrical exercises; explanation and recitation of Latin authors; Cicero: Pro Archia Poeta, De Suppliciis, De Senectute; Sallust; Livy, books XXI and XXII; Virgil: Eclogues, Georgics, Æneid (books III, IV, and V); translations from French into Latin and from Latin into French; elements of Latin bibliography; analysis of authors.

Greek (5 hours): Grammar continued; recitation of Greek authors; etymology; Lucian: Dialogues of the dead; Herodotus: Selections; Xenophon: Anabasis; translations from the Greek into French; elements of Greek bibliography.

History (3 hours): History of Europe, and especially of France, from 395 to 1270.

Geography (1 hour): Physical, political, and economical geography of Europe, exclusive of France.

Sciences (3 hours): Arithmetic and plane geometry; elements of algebra; physics: weight, equilibrium of liquids, heat.

Modern languages (3 hours): Grammar: Review of syntax; formation of words; elements of prosody; explanation and recitation of authors; reading and conversation; translations; brief bibliography. *German authors*: Selections; Goethe: Französischer Feldzug; Chamisso: Peter Schlemihl; Auerbach: Schwarzwälder Dorfgeschichten; Schiller: Wilhelm Tell, Maria Stuart. *English authors*: Selections; Macaulay: History of England, first volume; Walter Scott: A novel; Shakespeare: Julius Cæsar; Dickens: History of England.

Drawing (2 hours).

Second class (pupils 15 years old).

French (4 hours): Study of the French language; laws governing the formation of French words; explanation and recitation of French authors; selections, prose and poetry, of the sixteenth, seventeenth, eighteenth, and nineteenth centuries; Chanson de Roland; Joinville; Montaigne: Extracts; Corneille: Le Cid, Nicomède; La Bruyère; Racine: Iphigénie; Bossuet: Oraisons funèbres; Molière: L'Avare, Les Femmes Savantes; La Fontaine's Fables (the first six books); exercises and com-

positions; analysis of French authors; brief history of French literature till the death of Henry IV.

Latin (4 hours): Explanation and recitation of Latin authors; prosody and metrical exercises; Livy, books XXIII, XXIV, XXV; Cicero: In Catilinam, Somnium Scipionis; Tacitus: Agricola, Annales (books I, II, and III); Virgil: Æneid (books VI, VII, and VIII); Horace: Odes; translations, elements of Latin bibliography.

Greek (5 hours): Review of the grammar; recitation of Greek authors; exercises on the Greek vocabulary continued; Homer: Odyssey (books I, II, VI, XI and XII); Xenophon: Economics, Cyropædia; Herodotus: Selections; Plutarch's lives: Alexander, Demosthenes, Cicero; Euripides: Iphigenia, Hecuba, Alcestes; Greek translations; elements of Greek bibliography.

History (3 hours): History of Europe, and especially of France, from 1270 to 1610.

Geography (1 hour): Physical, political, and economical geography of Africa, Asia, America, and Australia; general means of communication on land and water; indication of the great centres of production and commerce.

Sciences (3 hours): Algebra; geometry; physics: optics, acoustics.

Modern languages (3 hours): Review of the grammar; explanation and recitation of authors; reading and conversation; written and oral translations; compositions; elements of literary history. *German authors:* Selections; Gœthe: Götz von Berlichingen, Reise nach Italien, Hermann und Dorothea; Schiller: Wallenstein, lyrische Poesie, Abfall der Niederlande; Hauff: Lichtenstein. *English authors:* Selections; Dickens: David Copperfield; Irving: Sketch Book; Goldsmith: The Deserted Village, The Traveller; Shakespeare: Macbeth; Walter Scott: A novel.

Drawing (2 hours in addition to the 22 hours prescribed).

Class of rhetoric (pupils 16 years old).

French (5 hours): Study of the French language; compositions; explanation and recitation of authors; selections of prose and poetry of the eighteenth and nineteenth centuries; Pascal: Pensées, Provinciales (I, IV, and XIII); Bossuet: Select sermons; La Bruyère; Fénelon: Lettres à l'académie; Buffon: Discours sur le style; Voltaire: Siècle de Louis XIV, select letters; Corneille: Théâtre; Racine: Théâtre; Molière: Le Misanthrope, Tartuffe; Boileau: Art poétique; La Fontaine's Fables (the last six books); discourses or French compositions; literary analysis of French authors; history of French literature since the accession of Louis XIII.

Latin (4 hours): Explanation and recitation of Latin authors; Cicero: Pro Milone, second Philippic, select letters; Livy: (books XXVI to XXX); Tacitus: Annales (books XIV and XV); Pliny: Select letters; Plautus: Extracts; Terence: Adelphi; Lucretius: Extracts; Virgil: Æneid (books IX to XII); Horace: Epistles; translations from Latin into French; Latin composition; literary analysis of Latin authors; elements of Latin bibliography.

Greek (4 hours): Explanation and recitation of Greek authors; Thucydides: Extracts: Demosthenes: Philipppics, Discourse on the Crown; Plato: Crito, Apology; Homer: Iliad (books I, II, XVIII, and XXII); Æschylus: Extracts; Sophocles: Oedipus, Antigone; Xenophon: Memorabilia; Aristophanes: Extracts; translations from Greek into French; elements of Greek bibliography.

History and geography (4 hours): History of Europe and especially of France from 1610 to 1789; physical, political, administrative, and economical geography of France and her colonial possessions.

Sciences (3 hours): Geometry; cosmography; physics: magnetism, electricity.

Modern languages (3 hours): Composition; explanation and recitation of authors; reading and conversation; written and oral translations from the French into foreign languages; translations from foreign languages into French; elements of literary history in connection with reading. *German authors:* Selections: Lessing: Hamburgische Dramaturgie; Gœthe: Tasso, Iphigenie, lyrische Poesie; Schiller: Die Braut von Messina, Der dreissigjährige Krieg. *English authors:* Selections; Dickens: Nicholas

Nickleby; Walter Scott: The Scotch Puritans; Shakespeare: Henry VIII, Richard III, Othello; Byron: Childe Harold.

Drawing (2 hours).

Class of philosophy (8 hours a week).

Course of philosophy: psychology, logic, morals, history of philosophy; elementary notions of political economy; French dissertations. *French authors*: Descartes: Discours sur la méthode, Première méditation; Leibnitz: Monadologie. (*One hour*): Explanation of Latin and Greek authors. *Latin authors*: Cicero: De Legibus (book I); Seneca: De Vita Beata. *Greek authors*: Plato: Republic (book VIII); Aristotle: Ethics.

History (3 hours): History of France and contemporary history from 1789 to the adoption of the present constitution in 1875.

Sciences (9 hours): Review of the mathematical, physical, and natural sciences; elements of mechanics; chemistry; anatomy and physiology of animals and plants.

Modern languages (1 hour): *German authors*: Selections of a philosophical character; Goethe: Faust (Part I); Lessing: Laocoön; correspondence between Schiller and Goethe, extracts; Herder: Ideas concerning the Philosophy of the History of Humanity; Schiller: Esthetic works. *English authors*: Selections of a philosophical character; Bacon: Essays; Pope: Essay on Criticism; Macaulay: History of England; John Stuart Mill: Liberty.

Drawing (2 hours).

SECONDARY SCHOOLS FOR GIRLS.

The bill to establish public secondary schools for girls became a law in November, 1880. The state will establish and support schools at Paris, Bordeaux, Dijon, Grenoble, Rheims, Lille, Lyons, Marseilles, Nancy, Nantes, and Rouen. The departments and communes will be aided by the state if they establish secondary schools for girls in other places. The subjects of instruction are obligatory and optional. The obligatory branches are: The French language, history of the French language and literature, philosophy, national history; a synopsis of general history, geography, arithmetic; the elements of physical and natural sciences; hygiene and elements of nursing, domestic economy; German, English, Italian, or Spanish common law, and needle-work. The optional branches will be determined for each school by its director, with the approval of the minister of public instruction.

A course of pedagogy is to be attached to each school for such pupils as desire to prepare themselves for the school service.

The teaching staff consists of male and female teachers, but whenever a lesson is given by a male teacher the presence of a female teacher is obligatory.

The new secondary schools are to be boarding and day schools.

An amendment, offered in the Senate, to make religious instruction a regular branch of instruction in these schools was rejected by a vote of 142 to 126.

SUPERIOR INSTRUCTION.

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SUPERIOR INSTRUCTION.

The following is an abstract of the report on superior instruction made by M. Bardoux, minister of public instruction, worship, and the fine arts, to the President of the French Republic.¹

ORIGIN OF SUPERIOR INSTRUCTION.

During the Roman domination the principal cities of Gaul had an officially organized educational system; but after the invasion of the barbarians the traces of it disappeared, and the churches with the monastic orders were the only places where some vestiges of the ancient culture are to be found.

Charlemagne made great efforts to revive education, and under the name of the Palatine School founded an establishment of which Alcuin was the first director and which has by some been considered the germ of the University of Paris.

It does not, however, appear that Charlemagne intended to concentrate in the Palatine School all the elements of restoration which were at his disposal. On his return from Rome, in 786, he addressed a circular to the bishops and abbots requesting them to promote the establishment of schools; he urges them to join their efforts with his for the revival of letters in his states. "It is necessary," he says, "to select as teachers men who are both able and willing to learn and also desirous of instructing others. It is our wish that, like true soldiers of the church, you should be pious, learned, and chaste, that is, leading good lives; you should also be wise, that is eloquent. Fail not to send a copy of this letter to all your suffragans and to all the monasteries." (Pertz, *Monumenta Germaniæ Historica*, t. III.) Other decrees followed this, and the clergy, responding to Charlemagne's appeal, established schools by the side of their churches, abbeys, and even small country presbyteries.

We read the following in a pastoral letter of Theodulphus, bishop of Orleans: "The priests shall open schools in town and rural districts, and if any one of the faithful wishes to intrust to them his children for instruction they shall not refuse to receive and teach them, but, on the contrary, they shall instruct them with perfect charity, requiring no pay except what parents may offer them voluntarily and through

¹ *Statistique de l'enseignement supérieur: enseignement, examens, grades, recettes et dépenses, en 1876; actes administratifs jusqu'en août 1878.* Paris, 1878.

affection." M. Guizot (*Histoire de la civilisation en France*, 23^e leçon) makes on this passage the following remark: "Here the faithful in general, the entire people, are meant, not only the people in the towns, but also the people in the country, who were the most neglected in regard to education." Louis le Débonnaire, Charles le Chauve especially, and Carloman continued the work commenced by Charlemagne; afterwards science and letters were again left to themselves, and were only represented by a few teachers at Rheims, Compiègne, Laon, and elsewhere.

In the twelfth century, however, René d'Auxerre teaches at Paris, Gillaume de Champaux and his disciple, Abailard, succeed him; afterwards, with many others, we find Pierre Lombard, bishop of Paris, the author of the *Sententiarum Libri IV*, the authority of which later was superseded by the *Decretum* of Gratian. The schools of the cloisters of Notre Dame, of Sainte-Geneviève, and of Saint-Victor formed from that time as many independent and rival centres of education, which were only united into one corporation towards the second half of the twelfth century, and styled by Mathieu Paris the *Consortium electorum magistrorum*.

The first privileges of this association are laid down in the diploma of Philippe Auguste of the year 1200, in which the scholastic and political prerogatives of the rector are defined. It was, however, only in the year 1215 that Robert de Courçon, cardinal of Saint-Étienne, legate of the Holy See, gave his first statutes to the *Consortium electorum magistrorum*, which was henceforth divided into faculties and took the name of University of Studies or simply University. It is indeed remarkable that the division of pupils into provinces or nations preceded the creation of the faculties.

The University was reformed in the thirteenth and fourteenth centuries by Innocent III and Urban V, apparently without the interference of the royal authority, and, in case of difficulties, it was the Holy See which solved them by virtue of its own authority, continuing to make use of a patronage of which we find the first indication in 1132 at the time of the quarrel between Professor Galon and the bishop of Paris. But at the Renaissance, and even before this period, royalty reclaimed its rights; thus, in 1489, we see the president of the Paris parliament, Pierre Boschet, directed, in the name of the King, to reform the University of Orleans; the letters of April 28, 1412, declared the parliamentary court alone competent to investigate the affairs of the University; in 1452, Charles VII appointed a commission which was to assist Cardinal d'Estouteville, legate of Pope Nicholas V, in the third reform of the University; finally, in 1595, Henry IV ordered a new revision of the University statutes, which were registered by the Parliament September 3, 1598, and published in the general assembly of the University September 18, 1600. Crevier, after having given the names of the royal commissioners, adds: "It will be seen that in this case the authority of the King *acts alone*, without the concurrence of the Pope. This is a remarkable

circumstance, and one which should not be overlooked. The first reforms had been made either by the Popes themselves or by their legates, without the interference of the secular power. In the reform of 1452, Charles VII joined his commissioners to the papal legate, but the latter presided; it is he who speaks in the statutes and who decrees as legislator, with the advice of the commissioners, whose powers did not extend beyond the privileges emanating from the royal authority. From this time the mode of thinking changed: secular power regained its rights, and the kings finally understood that it was their privilege to give laws to an institution established in their capital for the education of their subjects. Since the reform by Cardinal d'Estouteville, we no longer see the University applying to the Pope for regulations. It always applies to the royal authority, and more recently, in 1575 and 1577, the Parliament passed two decrees respecting its management."

But if the documents to which we have referred authorize us to say that from the sixteenth century royalty took under its tutelage both the studies and the discipline of the universities, there is nothing that indicates the action of a special agent having definite power from the sovereign to control the conduct of these establishments. Indeed, the legates and the parliaments are the instruments appointed by the two associated authorities; afterwards the parliaments became decidedly the organs of commanding royalty.

The intervention of the Holy See in university affairs was, however, not always considered superfluous, for the University of Dijon was founded in 1722 by letters patent of Louis XV and a bull of Innocent XIII.

There were in France 23 universities before 1789:

Paris: The University began apparently towards the end of the reign of Louis-le-Jeune, who died in 1180; its legal organization and its first statutes are anterior to 1200, the reign of Philippe-Auguste. The University of Paris included the following faculties in 1789: Theology, 8 professors, viz, four of the house of Navarre and 3 of the house of Sorbonne, and, besides, a professor of Hebrew; law, 7 professors, 1 of whom was for French law, and of agrégés; medicine, 6 professors (pathology, physiology, surgery, materia medica, chemical and galenic pharmacy, surgery explained in the French language), with instruction in chemistry and obstetrics for midwives. The faculty of arts was composed of 2 professors of each of the following ten colleges, founded in the years mentioned: Collège d'Harcourt, 1280; Collège du Cardinal-Lemoine, 1302; Collège de Navarre, 1304; Collège de Montaigu, 1314; Collège du Plessis-les-Tours, 1322; Collège de Lisieux, 1336; Collège de la Marche, 1402; Collège de Louis-le-Grand, 1560, under the name of Collège de Clermont; Collège des Grassins, 1569; Collège Mazarin, 1661.

There were, besides, 30 colleges for bursars of all kinds, which were abolished in 1769, and almost all united to the Collège Louis-le-Grand.

by letters patent of June 25 of the same year. The number of bursars in all the colleges was 541.

Aix: Founded in 1413 by Louis II, Count of Provence, confirmed by Pope Alexander V, and reorganized by letters patent of King Henry IV in October, 1603. It included the following faculties: Theology, 2 professors; law, 5 professors; medicine, 4 professors.

Angers: Founded in 1398 by Louis II, Duke of Anjou. It included the following faculties: Theology, 2 professors; law, 8 professors, later reduced to 4, 1 of whom was for French law; medicine, all the physicians established at Angers; arts. the professors of the college.

Besançon: Established at Gray by Otho, Count of Burgundy, towards the year 1280, transferred to Dôle by Philippe-le-Bon, Duke of Burgundy, in 1400, and definitely established at Besançon by the Emperor Ferdinand in 1564 and by Louis XIV in 1690. It included in 1789 faculties of theology, 2 professors; law, 4 professors; and medicine, 3 professors. There was, besides, at Besançon a school of surgery, founded by letters patent of 1773, and which was composed of 6 demonstrators.

Bordeaux: Founded in 1441 by Pope Eugene IV, at the request of officers of the municipality, who were made its patrons, and confirmed by Louis XI in 1473. It included faculties of theology, 6 professors, viz, 1 royal professor and 5 conventuals; law, 5 professors, 1 of them for French law; medicine, 2 professors; and arts, 2 professors.

Bourges: Founded in 1461 by Louis XI and his brother, the Duke of Berry. It included the following faculties: Theology, 2 professors; law, 5 professors; medicine, 4 professors; and arts. In 1754 the Chancellor de Lamoignon wrote to the professors: "Gentlemen: Complaints have reached me that your university grants diplomas of master of arts to candidates who have not passed any examination and who are sometimes unable to produce any certificate of studies pursued at a university. It was on the ground of similar abuses that the King determined, some years ago, to suppress the University of Cahors, and it would grieve me very much if the University of Bourges should meet the same fate."

Cahors: Founded by Pope John XXII, suppressed by Louis XV.

Caen: Founded by Henry VI, King of England, in January, 1431; confirmed by the Popes Eugene IV., Nicholas V, Calixtus III, Pius II, and Innocent VIII; reorganized in 1450 by Charles VII, King of France, at the request of the states of Normandy. It included faculties of theology, 3 professors; law, 5 professors and 8 assistants; medicine, 5 professors; and arts, 12 professors of the three colleges of the university. The professors charged with the teaching of mathematical and physical sciences, history, philosophy, and French and ancient literature must not be confounded with the so-called regents, who were only employed in the elementary classes.

Dijon: Founded by Louis XV in 1722 and by a bull of Pope Innocent XIII. It included a faculty of law, composed of 5 professors.

Douai: Founded by Philippe II, King of Spain, January 19, 1561; confirmed by Pope Pius V in 1569. It included faculties of theology, 5 professors; law, 5 professors; medicine, 3 professors; arts, 4 professors, 1 of them for the Hebrew language.

Montpellier: This university was composed of four faculties, which were founded at different periods. These were as follows: (1) Theology, instituted in 1421, by Pope Martin V, 2 professors, appointed after competition. (2) Law, the origin of which is traced as far back as the middle of the twelfth century, when, it is said, Placentius taught here Roman law; the popes granted the faculty very rare privileges; at the period of the Revolution it was composed of 5 professors. (3) Medicine, which formed a distinct body. In the bull of February, 1220, Pope Honorius III speaks of it as a university. In 1498 it was composed of four chairs, created by Louis XII; in 1592 Henry IV created a fifth chair for anatomy and botany; in 1597 a sixth chair was created for surgery and pharmacy; in 1680 a seventh chair, for chemistry; and, finally, in 1715, a chair for practical medicine. Besides the faculty of medicine, an edict of 1741 instituted a school of surgery, composed of 5 professors, acting as demonstrators, with as many assistants. (4) Arts, founded, it is thought, by Pope Nicholas IV, in 1289; it was composed of 2 professors.

Nancy: Founded in 1572, at Pont-à-Mousson, by Duke Charles III and the Cardinal of Lorraine; transferred to Nancy by letters patent of August 3, 1768. It included the following faculties: Theology, 2 professors; law, 4 professors; medicine, 4 professors;¹ arts, professors of the college, founded in 1610 by Porcelet, bishop of Toul.

Nantes: Founded by the Dukes of Brittany, John V and Francis I, and definitely established by Pope Pius II, in 1460, at the request of the Duke Francis II. It included faculties of theology, 3 professors; law (transferred to Rennes in 1735), 5 professors; medicine, all the medical professors of Nantes, 4 of whom were each time designated to lecture, and, besides, a school of surgery, with 5 demonstrators; arts, the professors of the college.

Orleans: Founded in 1305, by Pope Clement V, who, having himself studied under the direction of the professors of law of this city, authorized them to constitute themselves into a university. It was confirmed in 1312 by King Philippe-le-Bel, who restricted the papal privileges and placed its members under the jurisdiction of the provost. It included a faculty of law, composed of 5 professors. It possessed a library of from 4,000 to 5,000 volumes, which had been founded in 1566 by the celebrated German jurist Giphanius.

Pau: Founded in 1722 by Louis XV. It included a faculty of theology, 2 professors, and a faculty of civil and canon law, 4 professors.

¹To this faculty was annexed a college of surgery, created by letters of the King of June, 1770, and confirmed in November, 1771; it had 5 chairs. There was, besides, a college of medicine, founded in 1752 by King Stanislas, and united to the faculty of medicine. Its large revenues enabled it to procure a fine library, a botanical garden, and a chemical laboratory.

Perpignan: Founded by Peter III, King of Aragon, in April, 1349, and confirmed, the same year, by Pope Clement VI, who authorized it to teach all the sciences, except theology; but Pope Nicholas V authorized it, by a bull of August, 1447, to include theology in the course of study, and granted it the same privileges enjoyed by the University of Toulouse. As, in consequence of the war of the Spanish succession, the university lost the large revenues from the states of Catalonia, Louis XV made good this loss by his munificent donations in 1759.

Poitiers: Founded by a bull of Clement VII, of May 29, 1431, at the request of King Charles VII, who confirmed this establishment the same year. According to the papal bull it was to be composed of four faculties and constituted like the University of Toulouse. Its faculties were theology, 2 professors; law, 4 chairs, one of them for civil law, founded in 1679; arts, 3 professors, who were the professors of the college; and medicine, discontinued before 1789 for want of means.

Rheims: Founded in 1547 by the Cardinal of Lorraine, by virtue of a bull of Pope Paul III and of letters patent of Henry II. It included faculties of theology, 2 professors; law, 4 professors; medicine, 3 professors; and arts, 8 professors.

Strasburg: Lutheran University, founded in 1538 by the municipal senate and confirmed by Louis XIV in 1681. It received its first privileges in 1566 from the Emperor Maximilian II. It included 4 faculties, composed of 20 professors, who conferred degrees on Lutherans and Catholics and who were invested with the title of canons of St. Thomas, because the revenues of this collegiate church had been added to those of the university. Strasburg had also a Catholic university, founded by Cardinal von Fürstenberg and confirmed by Louis XIV. It included a faculty of theology and a faculty of arts.

Toulouse: Founded in 1215 by Philippe-Auguste, endowed in 1228 with 4,000 silver marks by Raymond VII, Count of Toulouse, confirmed in 1233 by Pope Gregory IX. It included faculties of theology, 3 perpetual professors and 6 conventual professors; law, 6 professors, the most celebrated for this branch in France; medicine, 5 professors and a demonstrator of anatomy. There was, besides, a school of surgery, composed of 6 professors and several assistant demonstrators; arts, 16 professors.

Valence: Established first at Grenoble in 1339 by the Dauphin Humbert II, transferred to Valence by letters patent of Louis XI—then a dauphin—of July 26, 1452, confirmed by the bull of Pius II, in May, 1459, and by Charles VIII, December 3, 1490. It included four faculties.

Independently of the universities and their colleges, primary instruction was given in the numerous schools under the patronage of the bishops or supported by the communes. At the states general of Orleans a request was made by the third estate "that a prebend be set apart

in every cathedral or collegiate church for the support of a preceptor, whose duty it should be to instruct the young gratuitously and without a salary. The preceptor was to be elected by the combined votes of the canons, mayors, aldermen, and forty persons from the neighborhood." At the same period (1560) the nobility wanted to make education obligatory, securing the aid of parents by means of fines. The attempt was repeated at the states general of Blois (1576 and 1588).

THE RÉGIME FROM 1791 TO 1808.

The institution of a central administration of the faculties, colleges, and schools dates from the end of the last century. Article VII of the decree of April 27 and May 25, 1791, assigned to the minister of the interior the task of maintaining provisionally the laws relative to public instruction and education. Does it follow that the temporary power to execute the school laws given to the minister conferred upon that officer at the same time complete power over educational affairs? This may be doubted, for the decree of December 22, 1789, had intrusted to the departmental administrations, under the authority and inspection of the King, as supreme chief of the nation and the general administration, "the superintendence of public education and of political and moral instruction." It would seem, therefore, from the wording of this decree that the intention was to decentralize, and not to place in one hand the direction of schools of all kinds. The assembly had reserved the right to examine this question more thoroughly, and, as it did not know which system to adopt, it decided to make no immediate change (decree of September 26, 1791), but directed the committee on the constitution to bring in a bill in harmony with the new order of things.

The report Talleyrand made is a very instructive document on many points. The first object of this report is to make us acquainted with the condition of the different scholastic institutions existing in 1790. In this respect the report is not always accurate. The second part of the report contains a plan of national education and indicates the means of providing for the direction of educational affairs by the organization of a council whose duty it should be to regulate education in general. Differing from Mirabeau, who intrusts to the legislative body the annual election of members of this council, Talleyrand confers the right of appointment upon the King.

The Constituent Assembly separated without agreeing upon any plan. The succeeding assembly agreed upon the appointment of a special committee of public instruction, composed of twenty-four members, among whom were Lacépède, Gaudin, Prieur, Condorcet, Quatremère, Brissot, Guadet, Pastoret, Carnot. Condorcet, resuming the work of Talleyrand, proposed still more radical measures, but the legislative corps separated before the reform projects were definitely agreed upon. The Convention, which made itself master of all public affairs, divided them into twenty-one committees, among which we find the committee

of public instruction, instituted by decree of October 2, 1792. This committee was subdivided into thirteen sections, viz: (1) General organization of public instruction; commission to prepare for composition or examination such elementary works as the public schools required; (2) Moral education; organization and management of the different schools; the control over boarding schools; responsibility which may be exacted from those who keep boarding pupils; private schools and their relation to public institutions; (3) Physical education; (4) Education of women; (5) Education of orphans, the congenital blind, and deaf-mutes; (6) Industrial education; (7) Travellers, libraries, museums, collections, general correspondence; mode of instruction in different grades; mode of instruction in places where the French language is little used; (8) Examinations, prizes and rewards; revision of the laws relative to patents, and the bureau of commerce; (9) National festivals; (10) Appointment of persons to vacant situations; first organization of the national society and of all grades of instruction; (11) Salaries and pensions; bursaries attached to the establishments of the old régime; (12) Bibliography; general catalogue of all the libraries and of the religious and other suppressed institutions;¹ (13) Finances and revenues of public institutions of learning.²

By decree of the 13th germinal, year II (April 2, 1794), based on the report of Carnot, the provisional executive council and the six ministries were abolished and replaced by twelve commissions. One of these commissions was charged with the control of public instruction; it was composed of two members and an assistant, who acted as secretary and keeper of the archives of the commission. It was charged with the preservation of national monuments, public libraries, museums, cabinets of natural history, and valuable collections, with the superintendence of schools and the methods of instruction, with everything relating to inventions and scientific researches, with the fixing of weights and measures, with theatres and national festivals, with the arrangement of statistics of population and of political economy. The twelve commissions corresponded with the committee of public safety, to which they were

¹The object of this work was to show the literary wealth of the republic, to form valuable collections of books for each department, and to arrange for the sale of all such works as the commission charged with their examination should deem advisable. The National Almanac of the year II (1794-95) announces that this work was already considerably advanced.

²This committee was composed of twenty-six members; the most prominent were David, Guyton Morveau, Fourcroy, Grégoire, and Lakanal. The ministry of the interior is the agent of this committee for all the affairs of public instruction, and the powers of the third division of this department are indicated as follows: Correspondence relating to public education and instruction; the sciences, arts, academies, theatres; national libraries; national museum; rewards bestowed on artists; commission of monuments; public buildings and monuments; operations relative to weights and measures; manufactures of Sèvres, Gobelins, &c.; the administration of the Tuileries, the Louvre and its dependencies, the national buildings outside of Paris and formerly depending on the civil list; the furniture store-room.

subordinate. The members of the commission and their assistants were appointed by the National Convention on the nomination of the committee of public safety. The salary of each of the commissioners was 12,000 francs and that of the assistants 8,000 francs. The commissioners of public instruction and their assistants were appointed on the 26th fructidor, year II (September 12, 1794).

Under this organization were passed all the laws respecting education, most of which, however, remained unexecuted. A commission of three members, subordinate to both the committee of public safety and the committee of public instruction, was a complication very different from the unity it had been sought to secure. We seek in vain in this system for what had been insisted upon two years before, namely "an authority free from political fluctuations, a guardian of educational traditions," in a word, a real council of public instruction.

In the year IV (1795-'96), the ministries were reëstablished, and the ministry of public instruction was again placed under the jurisdiction of the minister of the interior.¹

This condition of affairs lasted during the whole time of the Directory. A new era was inaugurated under the Consulate; a distinct ministry was not yet created, but a councillor of state was intrusted with educational affairs. This was not all: Bonaparte realized Richelieu's and Condorcet's project, and charged the Institute of France to submit every five years its views on the improvements which might be introduced into public instruction. (Decree of the 13th ventôse, year X, March 3, 1802.)

A little later the general law of the 11th floréal (April 30, 1802) became a decisive instrument of regeneration of our schools. This law provides, indeed, for the first time, for a complete organization of the teaching corps. The inspectors general of education, associated with the director, formed a permanent committee, to whom the law gave the power of presenting to the government the names of candidates for vacancies in the lycées and the special schools. By the law of the 22d ventôse, year XII (March 12, 1804), which created the schools of law, the number of inspectors general was increased from three to eight. Public instruction still remained under the ministry of the interior, but the role of special director continued to grow in importance.

UNIVERSITY OF 1808.

The law of May 10, 1806, approved by imperial decree of the 20th, brought about a thorough change in our school system.

Article I says: "There shall be formed under the name of Imperial University a body which shall have exclusive charge of public instruction in the whole empire."

Art. II. "The obligations assumed by the teaching force are civil, special, and temporary."

¹ In the year IX (1800-'01) there was in the ministry of the interior only one bureau for all the public school affairs.

According to the decree of March 17, 1808, no school may be established outside of the university without the sanction of its chief. No one may teach unless he is a member of the university and a graduate of its faculties. The decree fixes the number of faculties at five: theology, law, medicine, sciences, and letters.

The hierarchy of the central administration is regulated as follows: The grand master of the university, the chancellor, the treasurer, the council of the university, composed of thirty members and divided into five sections.

The grand master makes all the appointments, confers all the distinctions, and makes all the promotions in the university. He exercises a part of the disciplinary jurisdiction, calls the meetings of the council and presides over them.¹

CHANGES FOLLOWING THE RESTORATION.

There was every reason to fear that the fall of the university might follow that of Napoleon. His work was soon denounced as an instrument of power (*instrument de règne*). Although the total abolition of the university was demanded, there were men who successfully defended it at the sacrifice of its author.

MM. Guizot and A. Rendu, whose sentiments were beyond suspicion, attached great value to the services of a body which had won the esteem of the country. We have been able to find in publications very little known at present some traces of their personal projects. M. Guizot expressed himself against absolute liberty, against the establishment of hostile schools which would divide the children as the parents are divided, for the creation of a staff of teachers belonging to the state and recruited by state normal schools, for a superior educational council, and against a single chief, minister, or grand master. M. Rendu presents a complete plan of reform. He maintains the university and its monopoly, the grand master, the council, and creates 21 academies.

A royal decree of February 17, 1815, indicated the intentions of the new régime :

"Having been informed of the condition of public instruction in our kingdom," says Louis XVIII, "we observe that it is based upon laws which were more intended to serve the political aims of the government which made them than to spread among our subjects the benefits of a moral education and a training in conformity with the wants of our time. * * *

"We have thoroughly examined the institutions which we intend to reform, and it seems to us that a single and absolute authority is incompatible with the paternal intentions and liberal spirit of our government."

In concluding, the King expresses his intention to submit to the Chambers as soon as possible the organic laws of public instruction, and he decrees that there shall be henceforth seventeen universities, that each university shall be composed of: first, a council presided over by

¹The council frequently met at the Tuileries under the presidency of the Emperor.

the rector; second, faculties; third, royal colleges; fourth, communal colleges; that the instruction and discipline in all the universities shall be regulated and superintended by a royal council of public instruction.

The royal council was composed of a president and eleven councillors appointed by the King. The office of grand master was abolished, and his powers were conferred on the royal council. This decree was essentially decentralizing, but the events of March 20 were an obstacle to its execution.

The imperial university system was again in vigor during the hundred days; then, on the return of Louis XVIII, it was thought best "to suspend all important innovations in public instruction"; the organization of the academies was provisionally maintained; "the powers conferred on the grand master and on the council of the university, as well as on the chancellor and the treasurer, shall henceforth be exercised, under the authority of the minister of the interior, by a commission of five members, which shall take the title of commission of public instruction." (Decree of August 15, 1815.) This shows that the idea of decentralization was entirely abandoned.

The commission of public instruction exercised its functions until 1820. By decree of November 1, 1820, it received again the title of royal council of public instruction, and the number of its members was increased from five to seven. Shortly afterwards the president of the council exercised to a great extent the functions of grand master. (Decree of February 27, 1821.) Finally, the office of grand master was formally reestablished by decree of June 1, 1822.

FORMATION OF A MINISTRY OF PUBLIC INSTRUCTION.

On August 26, 1824, a still more important step was taken, a ministry of ecclesiastical affairs and public instruction was created. The decree of establishment intrusts to the minister the functions of grand master of the university, "with the exception of those relating to the faculties of Protestant theology, in regard to which the functions of grand master shall be exercised by a member of our royal council, and which shall be continued under our minister of the interior, as well as all affairs relative to non-Catholic religious sects." The minister was assisted by two directors, one for ecclesiastical affairs and one for public instruction. Thus, even after the creation of a special department, public instruction remained partly under the jurisdiction of the minister of the interior.

The inevitable consequences of the creation of a ministry of public instruction were to limit the powers of the royal council.

By decree of 1845 the council of the university was again reconstructed as it had been established by decree of March 17, 1808. From 1845 to 1850 the minister published every year, in conformity with the organic decree, the names of the ordinary councillors of the university. This restoration of the council of the university was of short duration.

The charter of 1830 had included among the bills to be discussed a bill on public instruction and the liberty of teaching. The principle of liberty found its application in the primary education law of 1833, but M. de Montalembert and his friends vehemently insisted on its application to secondary and superior education also. In their writings and discourses they incessantly referred to the promise contained in the charter; they invoked the rights of parents; but the government in full accord with the Chambers refused to comply with their request. Nevertheless M. de Salvandy thought proper in 1847 to submit a new law, and, being convinced of the necessity of offering to private establishments more ample guarantees than they had hitherto enjoyed, he inserted in his project the following:

ARTICLE 34. There shall be established in the ministry of public instruction a superior educational council, whose duty it shall be to treat general educational questions, matters relating to public and private schools in common, and affairs relating specially to private schools and teachers. The council shall be composed of the royal council of the university and of twelve private councillors appointed by the King.

ARTICLE 35. May be appointed private councillors: former royal ministers; councillors of state; first presidents of the courts of cassation, the court of accounts, the royal courts, and the procurators general attached to these courts; the archbishops or bishops; presidents of consistories; members of the Institute; chiefs and former chiefs of institutions with a full course (*institutions de plein exercice*).

SUPERIOR EDUCATIONAL COUNCIL OF 1850.

The new constitution affirmed the principle of liberty of instruction, and the National Assembly adopted March 15, 1850, an organic law of public instruction, of which the following is an abstract:

ARTICLE 1. The superior council of public instruction is composed of the minister, president; four archbishops or bishops, elected by their colleagues; a minister of the reformed church, elected by the consistories; a minister of the Augsburg confession, elected by the consistories; a member of the Jewish consistory, elected by his colleagues; three councillors of state, elected by their colleagues; three councillors of the court of cassation, elected by their colleagues; three members of the Institute, elected at the general assembly of the Institute; eight members appointed by the President of the Republic from among the council of the university, the inspectors general, the rectors, and professors of the faculties (these eight members form a permanent section); three teachers engaged in private institutions, appointed by the President of the Republic on the recommendation of the minister of public instruction.

ART. 2. The members of the permanent section are appointed for life. They alone receive a salary.

ART. 3. The other members of the council are appointed for six years. They may be reelected indefinitely.

ART. 4. The superior council holds at least four sessions a year. The minister may call extraordinary sessions as often as he deems it expedient.

ART. 5. The superior council may be called upon to give its opinion on draughts of laws, the regulations and decrees relative to education, and, in general, on all the questions laid before it by the minister. The council presents every year a report on the general condition of education to the minister of public instruction.

THE SUPERIOR COUNCIL OF 1852.

The decree of March 9, 1852, modified the organization of the council by substituting for the mode of electing members direct and annual appointment by the chief of the state. The council was then composed of three members of the senate, three members of the council of state, five archbishops or bishops, three members of the non-Catholic denominations, three members of the court of cassation, five members of the institute, eight inspectors general, and two teachers of private schools. The ordinary sessions of the council were reduced from four to two a year. The superior council adopted, in 1853, the title of imperial council of public instruction. This is the only modification which it underwent during the whole period of the Second Empire.

THE SUPERIOR COUNCIL OF 1873.

In 1871, after the Franco-Prussian war, the council of public instruction became disorganized. The senate existed no longer; the council of state was not yet reconstructed; the principle of annual and direct appointments by the chief of the state, inaugurated in 1852, seemed to be incompatible with the new ideas then in vogue. Consequently, on the 20th April, 1871, a proposition was submitted to the national assembly by Messrs. Dupanloup, the Duke de Broglie, Wallon, Vitet, Waddington, Mortimer-Ternaux, Beulé, the Count Jaubert, Saint-Marc Girardin, Generals d'Aurelles de Paladines and Trochu, Admirals Montagnac and Jauréguiberry, de Lavergne, de Corcelles, the Count de Mérode, and others.

In bringing in the bill the Duke de Broglie defined its character thus: "In the opinion of the legislator of 1850 the council was to be the free and faithful representative of all the elements of society, equally interested in the training of the coming generations. It was not simply a gathering of administrators associated with the direction of some branch of the public service, as the war and navy departments or the administration of the roads and bridges; it was a family assembly, an assembly of the entire French family, called together to superintend the first steps in the life of its own children. The clergy, the ministers of the various denominations, the magistracy, the council of state, in a word, all the great bodies which are the organs of the moral life of a nation, had their place in this supreme council in proportion to their importance."

Upon this proposition the national assembly passed a law, March 19, 1873, of which the following is an abstract:

ARTICLE 1. The superior council instituted in the ministry of public instruction is composed as follows: The minister, president; three members of the council of state in ordinary service, elected by the council of state; a member of the ministry of war, appointed by the minister of war; a member of the ministry of the marine, appointed by the minister of the marine; four archbishops or bishops, elected by their colleagues;

a delegate of the reformed church, elected by the consistories; a delegate of the Augsburg confession, elected by the consistories; a member of the Jewish central consistory, elected by his colleagues; five members of the Institute, elected in the general assembly of the Institute; a member of the College of France, elected by his colleagues; two members of the court of cassation, elected by their colleagues; a member of the faculty of law, elected by the professors of the faculty of law; a member of the faculty of medicine, elected by the professors of the faculty of medicine; a member of the faculty of letters, elected by the professors of the faculty of letters; a member of the faculty of sciences, elected by the professors of the faculty of sciences; a member of the academy of medicine, elected by his colleagues; a member of the superior council of arts and manufactures, elected by his colleagues; a member of the superior council of commerce, elected by his colleagues; a member of the superior council of agriculture, elected by his colleagues; seven members of public instruction, appointed with the advice of the ministers by the President of the Republic; four teachers of private schools, elected by the council. -

ART. 2. The members of the council are elected for six years. They may be re-elected indefinitely.

ART. 3. The council holds two sessions a year. Extra sessions may be called by the minister.

ART. 4. The superior council may be called upon to give its opinion on proposed legislation, on regulations and decrees relative to education, and, in general, on all questions which the minister may submit. The council presents to the minister of public instruction every year a report on the condition of education in general.

It will be observed that the law of 1873 gives the professional and industrial schools, as well as the army and navy, a representation in the council. The permanent section was not maintained in the new law; the minister of public instruction, M. Jules Simon, proposed to organize instead an advisory committee of public instruction composed of seven members.

It appears from the foregoing that the superior council of public instruction has been profoundly affected by the political events which have for nearly three-quarters of a century exercised their influence on all public affairs in France. At first the council was invested with the most extensive powers; it was almost sovereign master of an educational monopoly. Later, in 1824, it ceded a part of its powers to the responsible minister, and still later, after the disappearance of the monopoly, it was transformed into an elective assembly, in which the university maintained its distinct representation. Soon afterwards it was made dependent on the chief of the state and lost part of its jurisdiction. Finally, when the elective system was readopted, it regained its former authority.

Whatever the integrity of the men in power may have been, their decisions were necessarily affected by the changeability of the institutions under which they worked, and if they have made efforts at all times to protect the interests of education it is too manifest that these interests have not always been looked at from the same standpoint, and it must also be admitted that reforms have been more frequent than improvements.

ADVISORY COMMITTEE OF PUBLIC INSTRUCTION.

This committee is not a new institution. We find traces of it in the decrees of March 13 and September 21, 1804, which order the organization of a superior council of education, composed of the five inspectors general of schools of law. A decree of September 23, 1850, authorized the minister to call upon the inspectors general to take part in the deliberations of the permanent section, and the decree of October 28, 1852, decided that the inspectors general were to meet every fortnight, and to examine, together with the chiefs of divisions of the central administration, the affairs submitted by the minister. Finally a decree of September 28, 1869, conferred on these meetings the title of committee of inspectors general. The minister presided over their meetings.

The new advisory council was organized in pursuance of a promise made by the minister at the time when the law on the superior council of education was discussed in the National Assembly. "As soon as the present bill has passed," said M. Jules Simon, "I shall institute, by a ministerial decree, an advisory committee, whose powers shall be definitely fixed. The committee shall be composed of men who are thoroughly acquainted with the most difficult and the most delicate question in school affairs, the inspection of institutions of learning, and who have reached the highest place in education, the Institute. This committee must not be composed of inspectors general exclusively, but we must add at least one member of every faculty in Paris, the presidents of the boards of admission at the two sessions at which promotions are made, the director of the superior normal school, and the directors of the three sections in the ministry of public instruction. The minister shall not be obliged to make any titular appointments nor to make decisions concerning the rights of the personnel without hearing first the opinion of the committee. I do not know a minister who would not feel that by ignoring the advice of the committee he largely increases his responsibility." The bill was passed March 19, 1873, and on the 25th of the same month the decree above referred to was issued. The new committee was composed of the minister (president), twelve inspectors general designated by the minister, the vice rector of the Academy of Paris, the director of the superior normal school, a professor of each faculty in Paris (with the exception of the theological faculty), professors of the College of France, of the museum, of the superior school of pharmacy, the directors of superior, secondary, and primary instruction in the ministry, and the chief of the division of accounts in the central administration. The committee was divided into three sections, each section to meet once a month and the committee in general assembly once a trimester.

The committee was reorganized by decrees of December 5, 1877, and January 10, 1878.

DECREE OF DECEMBER 5, 1877.

ARTICLE 1. The advisory committee of public instruction is presided over by the minister. It is divided into three sections, corresponding to the three orders of instruction: superior, secondary, and primary. Each section elects its president and its secretary, and may subdivide itself into special commissions.

ART. 2. The section of superior education is composed of the inspectors general of superior education, the professors of the faculties and the superior schools of pharmacy, the professors of establishments of superior instruction, the vice rector of the Academy of Paris, and the director of the superior normal school. The delegates of the faculties to the superior council of public instruction are ex officio members of the section until their appointment expires.

The section of secondary education is composed of inspectors general of secondary education, the inspectors general of modern languages, the vice rector of the Academy of Paris, and the director of the superior normal school.

The section of primary education is composed of inspectors general of primary education, of the vice rector of the Academy of Paris, and the director of the primary normal school of the department of the Seine.

The directors of these orders of education in the ministry of public instruction are ex officio members of the committee.

ART. 3. All those who are not ex officio members of the committee will be appointed by the minister for five years.

ART. 4. The members of the Institute and the functionaries of public instruction who are called together every year by the minister for the general inspection or to preside over the examination jury may, by decree of the minister, sit in the council and vote.

ART. 5. Each section meets at the call of the minister at stated times.

ART. 6. The committee gives its advice on proposed legislation, regulations, and courses of study, and on administration and disciplinary questions which may be submitted by the minister.

ART. 7. At the end of each school year each section holds a special session to prepare a list of teachers recommended for promotion.

ART. 8. The dispositions contrary to this decree are abrogated.

DECREE OF JANUARY 10, 1878.

ARTICLE 1. The section of superior education of the advisory committee of public instruction is divided into five special commissions, viz: The commission on courses of study and discipline, the commission on law, the commission on medicine and pharmacy, the commission on sciences, and the commission on letters.

ART. 2. Each commission meets at the call of the minister.

CENTRAL ADMINISTRATION OF PUBLIC INSTRUCTION.

On January 1, 1878, the central administration of public instruction was organized as follows:

Cabinet of the minister; cabinet of the under secretary of state; interior service (service intérieur); bureau of rolls and archives. Direction of sciences and letters — first bureau: historical works and scientific societies, the Institute, missions, encouragements to scientific societies and to literary persons, library of the ministry; second bureau: libraries, subscriptions; third bureau: book depositary and school libraries. Direction of superior education — first bureau: general inspection, faculties and superior schools, private superior schools; second bureau: scientific and literary establishments, academic administration; third bureau: material and accounts. Direction of secondary education — first bureau: classical and special instruction, bursaries; second bureau: personnel; third bureau: material and accounts. Direction of primary education: first bureau: personnel; second bureau: disputed matters and discipline; third bureau: administration and material; fourth bureau: accounts. Divis-

ion of accounts—first bureau: accounts in general; second bureau: pensions, accounts of the central administration.

Budgets of the central administration of public instruction in 1878 and 1868.

Nature of expenses.	No. of employés.	Amount of yearly salaries.	Appropriation in—		Differences in the budget of 1878.	
			1878.	1868.	Increase.	Decrease.
		<i>Francs.</i>	<i>Francs.</i>	<i>Francs.</i>	<i>Francs.</i>	<i>Francs.</i>
Salary of the minister.....		60,000	60,000	100,000		40,000
Salary of the under secretary of state.....		20,000	20,000		20,000	
Secretary general.....				18,000		18,000
Director of the personnel.....				15,000		15,000
Chief of the cabinet of the minister.....	1	7,000	7,000	6,000	1,000	
Under chief of the cabinet of the minister.....	1	4,000	4,000		4,000	
Chief of the cabinet of the under secretary of state.....	1	4,000	4,000		4,000	
Directors.....	4	13,000–15,000	58,000		58,000	
Chief of division.....	1	12,500	12,500	60,000		47,500
Under directors.....	3	8,000–9,200	26,400		26,400	
Bureau chiefs.....	13	6,500–9,200	102,900	72,600	30,300	
Assistant bureau chiefs.....	2	5,500–6,000	11,500		11,500	
Under bureau chiefs.....	16	4,500–6,000	81,300	63,300	18,000	
Assistant under bureau chiefs.....	2	3,600–4,000	7,800		7,800	
Employés of different classes.....	84	1,500–4,100	216,400	193,000	23,400	
Librarian.....	1	3,500	3,500		3,500	
Laborers.....	34	200–2,100	50,200	40,300	9,900	
Indemnities and aids.....			5,000	5,000		
Total.....	163		670,500	573,200	217,800	120,500
Increase in 1878.....					97,300	

Nature of expenses.	Appropriation in—		Differences in the budget of 1878.	
	1878.	1868.	Increase.	Decrease.
	<i>Francs.</i>	<i>Francs.</i>	<i>Francs.</i>	<i>Francs.</i>
Fuel.....	18,000	20,000		2,000
Lighting.....	9,000	10,000		1,000
Fitting up and care of bureaus.....	10,000	10,000		
Printing.....	20,000	20,000		
Keeping buildings and furniture in repair.....	35,000	45,000		10,000
Various unforeseen expenses, ceremonies, illuminations.....	34,900	30,000	4,900	
Cost of the material of the superior council of public instruction.....	5,000	5,000		
Total.....	131,900	140,000	4,900	13,000
Decrease in the budget of 1878.....			8,100	

MINISTERS OF PUBLIC INSTRUCTION SINCE 1808.

Following is a complete list of the ministers of public instruction, with their official titles, from March 17, 1808, to the present time:

1808-1815: (1) Count de Fontanes, grand master of the imperial university, March 17, 1808; (2) M. de Beausset, formerly bishop of Alais, president of the royal council of public instruction, February 17, 1815; (3) Count de Lacépède, grand master of the imperial university, March 30, 1815; (4) M. Lebrun, duke of Plaisance, grand master of the imperial university, May 9, 1815.

1815-1830: (1) M. Royer-Collard, president of the commission of public instruction, August 15, 1815; (2) Count Decazes, minister of the interior, president of the commission of public instruction, December 29, 1818; (3) Count Siméon, minister of the interior, president of the commission of public instruction, February 21, 1820; (4) M. Lainé, president of the royal council of public instruction, November 1, 1820; (5) M. de Corbière, president of the royal council of public instruction, December 21, 1820; (6) Baron Cuvier, president of the royal council of public instruction, *ad interim*, June 21, 1821; (7) Count de Frayssinous, bishop of Hermopolis, grand master of the royal university, June 1, 1822; (8) Count de Frayssinous, bishop of Hermopolis, minister of ecclesiastical affairs and of public instruction, August 26, 1824, to February 1, 1825; (9) M. de Vatimesnil, minister of public instruction and grand master of the university, February 1, 1828, to August 8, 1829; (10) Baron de Montbel, minister of ecclesiastical affairs and of public instruction, August 8, 1829, to November 18, 1829; (11) Count de Guernon-Ranville, November 18, 1829, to July 29, 1830.

1830-1848: (1) M. Bignon, temporary commissioner in the department of public instruction, August 3, 1830, to August 11, 1830; (2) the Duke de Broglie, minister of public instruction and worship, August 11, 1830, to November 2, 1830; (3) M. Mérilhon, November 2, 1830, to December 27, 1830; (4) M. Barthe, December 27, 1830, to March 23, 1831; (5) Count de Montalivet, March 23, 1831, to April 29, 1832; (6) M. Barthe, *ad interim*, April 29, 1832; (7) Baron Girod (de L'Ain), April 30, 1832, to October 11, 1832; (8) M. Guizot, minister of public instruction, October 11, 1832, to November 10, 1834; (9) M. Teste, *ad interim*, November 10, 1834; (10) M. Guizot, November 18, 1834, to February 22, 1836; (11) Count Pelet (de la Lozère), February 22, 1836, to September 6, 1836; (12) M. Guizot, September 6, 1836, to April 15, 1837; (13) M. de Salvandy, April 15, 1837, to March 31, 1839; (14) M. Parant, March 31, 1839, to May 12, 1839; (15) M. Villemann, May 12, 1839, to March 1, 1840; (16) M. Cousin, March 1, 1840, to October 29, 1840; (17) M. Villemain, October 29, 1840, to December 30, 1844; (18) M. Dumon, *ad interim*, December 30, 1844, to February 1, 1845; (19) Count de Salvandy, minister of public instruction and grand master of the university, February 1, 1845, to February 24, 1848.

1848-1870: (1) M. Carnot, minister of public instruction and worship, February 24, 1848, to July 5, 1848; (2) M. Vaublanc, July 5, 1848, to October 13, 1848; (3) M. Freslon, October 13, 1848, to December 20, 1848; (4) M. de Falloux, December 20, 1848, to September 14, 1849; (5) M. Lanjuinais, *ad interim*, September 14, 1849, to October 31, 1849; (6) M. de Parieu, October 31, 1849, to January 24, 1851; (7) M. Ch. Giraud, January 24, 1851, to April 10, 1851; (8) M. de Crouseilles, April 10, 1851, to October 26, 1851; (9) M. Ch. Giraud, October 26, 1851, to December 2, 1851; (10) M. H. Fortoul, December 3, 1851, to July 1, 1856; (11) Count Vaillant, *ad interim*, July 1, 1856, to August 13, 1856; (12) M. Rouland, August 13, 1856, to June 23, 1863; (13) M. V. Duruy, minister of public instruction, June 23, 1863, to July 17, 1869; (14) M. Bourbeau, July 17, 1869, to January 2, 1870; (15) M. Segrès, January 2, 1870, to April 14, 1870; (16) M. Maurice Richard, *ad interim*, April 14, 1870, to May 13, 1870; (17) M. Mège, May 13, 1870, to August 9, 1870; (18) M. Brame, August 9, 1870, to September 4, 1870.

1870-1879: (1) M. Jules Simon, minister of public instruction, worship, and fine arts, September 4, 1870, to May 18, 1873; (2) M. Waddington, minister of public instruction and fine arts, May 18, 1873, to May 25, 1873; (3) M. Barthé, minister of public instruc-

tion, worship, and fine arts, May 25, 1873, to November 26, 1873; (4) M. de Fontrou, minister of public instruction, worship, and fine arts, November 26, 1873, to May 22, 1874; (5) the Viscount Arthur de Cumont, minister of public instruction, worship, and fine arts, May 22, 1874, to March 10, 1875; (6) M. H. Wallon, minister of public instruction, worship, and fine arts, March 10, 1875, to March 9, 1876; (7) M. Waddington, minister of public instruction, worship, and fine arts, March 9, 1876, to May 17, 1877; (8) M. J. Brunet, minister of public instruction, worship, and fine arts, May 17, 1877, to November 23, 1877; (9) M. Faye, minister of public instruction, worship, and fine arts, November 23, 1877, to December 23, 1877; (10) M. A. Bardoux, minister of public instruction, worship, and fine arts, December 13, 1877, to February 4, 1879; (11) M. Jules Ferry, minister of public instruction and fine arts, February 4, 1879.¹

CHANGES AND IMPROVEMENTS MADE IN INSTITUTIONS FOR SUPERIOR INSTRUCTION SINCE 1868.

Faculties of theology.—The faculty of Protestant theology of Strasburg was transferred to Paris in 1877.

Faculties of law.—A faculty of law was established at Bordeaux in 1871 and another at Lyons in 1875; a chair of Roman law was added at Douai in 1875, and in 1876 eight new chairs of civil and criminal law were established in various places. In 1876 and 1877 a chair of history of law was established at Bordeaux, three chairs of political economy at Bordeaux, Rennes, and Toulouse, and seven courses of political economy at Aix, Caen, Dijon, Douai, Grenoble, Nancy, Poitiers. A general competition (*concours général*) has been instituted for all the students of the faculties of law. Political economy has been made obligatory and now enters into the examination for the licentiate.

Faculties of medicine.—New faculties were created at Lyons in 1874, at Bordeaux in 1878, and at Lille in 1875. Lyons has 25 chairs, Bordeaux 22, and Lille 18.

Practical exercises have been made obligatory in the faculties by decree of June 20, 1878, and, at the same time, the conditions of admission have been modified; candidates for matriculation must be bachelors of letters and sciences.

All the faculties are now or will soon be provided with laboratories and the necessary apparatus.

New chairs have been created at Paris and Montpellier.

Faculties of sciences.—Eighteen new chairs were established from 1873 to 1877, viz: At Paris, a chair of organic chemistry; at Marseilles, a chair of zoölogy; at Bordeaux, a chair of astronomy and a chair of botany; at Caen, a chair of mechanics; at Clermont, a chair of mechanics and a chair of botany and zoölogy; at Grenoble, a chair of mechanics and a chair of botany; at Lille, a chair of botany and a chair of chemistry applied to agriculture and industry; at Lyons, a chair of astronomy and a chair of chemistry applied to industry; at Nancy, a chair of botany; at Poitiers, a chair of botany and zoölogy; at Rennes,

¹ As this work is going through the press, the ministries of public instruction and worship have been reunited, and M. Paul Bert has been appointed to succeed M. Ferry.

a chair of botany; at Rouen, a chair of chemistry applied to industry, and a chair of differential and integral calculus.

Faculties of letters.—In the faculty of letters at Paris a chair of Greek poetry was created in 1878. Chairs of geography have been created in the faculties of Toulouse, Bordeaux, and Lyons, and chairs of archæology at Paris, Lyons, Toulouse, and Bordeaux.

Superior schools of pharmacy.—Although these great establishments are styled schools, they are really faculties. Here, too, practical exercises have been made obligatory and the courses of study extended to four years for first class pharmacentists and to three years for those of the second class.

Full course medical and pharmaceutical schools (écoles de plein exercice).—The preparatory schools of Nantes and Marseilles, which have adopted this title, had to comply with special conditions, the expenses of which were borne by the two cities. The number of chairs had to be increased, the buildings enlarged, the salaries of the professors raised, &c.

Preparatory schools of medicine and pharmacy.—All these schools have been completely reorganized by decree of August 10, 1877. They may not have less than 11 chairs. All the dispositions relative to examinations for degrees, &c., are applicable to these schools.

Table showing the condition of institutions for superior instruction in 1867.

Number of institutions.	Faculties and schools.	Chairs.	Complementary courses.	Conferences.	Total.
5	Faculties of Catholic theology	29	.....	.....	29
2	Faculties of Protestant theology	13	.....	.....	13
11	Faculties of law	97	14	.....	112
3	Faculties of medicine	61	19	.....	80
16	Faculties of sciences	102	27	.....	129
16	Faculties of letters	86	.....	.....	86
3	Superior schools of pharmacy	19	.....	.....	19
22	Preparatory schools of medicine and of pharmacy ..	165	.....	.....	165
5	Schools preparatory to superior instruction in sciences and letters.	42	3	.....	45
83	Total	615	63	.....	678

Table showing the condition of institutions for superior instruction in 1878.

Number of institutions.	Faculties and schools.				Total.
		Chairs.	Complementary courses.	Conferences.	
5	Faculties of Catholic theology.....	29	2	.....	31
2	Faculties of Protestant theology.....	13	1	4	18
12	Faculties of law.....	124	59	.....	183
3	Faculties of medicine.....	65	20	4	157
3	Mixed faculties of medicine and pharmacy.....	68			
15	Faculties of sciences.....	124	5	18	147
15	Faculties of letters.....	96	13	19	128
3	Superior schools of pharmacy.....	19	5	2	26
2	Full course schools of medicine and of pharmacy.....	34	.....	.....	34
16	Preparatory schools of medicine and pharmacy.....	176	.....	.....	176
4	Schools preparatory to superior instruction in sciences and letters.....	42	.....	.....	42
80	Total.....	790	105	47	942

Table showing the number of students on the rolls from 1867 to 1876.

Years.	Theology.			Medicine.	Sciences.	Letters.	Pharmacy.	Preparatory schools of medicine and of pharmacy.	Schools preparatory to superior instruction in sciences and letters.	Total.
	Catholic.	Protestant.	Law.							
1867..	117	140	20,459	7,630	408	19,213	1,887	4,371	74	54,299
1868..	196	213	19,992	8,094	473	18,746	2,169	4,627	45	54,557
1869..	100	195	20,881	8,833	461	19,403	2,133	4,857	22	56,935
1870..	87	146	17,552	7,046	331	16,435	1,840	4,679	21	42,137
1871..	143	140	17,656	9,235	184	16,887	1,976	7,250	6	53,477
1872..	49	80	21,726	8,136	290	20,149	2,092	7,742	12	60,396
1873..	71	88	20,516	8,949	351	18,804	2,269	7,607	12	58,767
1874..	60	104	19,261	9,599	426	17,651	2,225	7,326	1	56,656
1875..	91	81	19,223	10,166	483	17,747	2,391	6,854	.....	57,045
1876..	62	79	18,581	9,526	431	17,498	2,577	6,412	25	55,191

Table showing the number of students attending the Catholic faculties from 1875 to 1878.

Faculties.	Number of students in —		
	1875-'76.	1876-'77.	1877-'78.
Faculties of law :			
Angers	192	316	463
Lille	191	239	209
Lyons	244	448	424
Paris	504	761	1,041
Toulouse			208
Mixed faculty of medicine and pharmacy :			
Lille		21	359
Faculties of sciences :			
Angers			16
Lille		7	18
Lyons			8
Paris	6	32	28
Faculties of letters :			
Angers		24	16
Lille		33	48
Lyons			88
Paris	36	41	37

Table showing the number of degrees obtained in the various faculties from 1867 to 1876.

Years.	Theology.						Law.			
	Catholic.			Protestant.			Bachelors.	Licentiates.	Doctors.	Certificates of capacity.
	Bachelors.	Licentiates.	Doctors.	Bachelors.	Licentiates.	Doctors.				
1867	4	6	5	20	2		1,495	1,157	100	98
1868	8	5	3	61			1,350	1,218	132	104
1869	10	7	4	56	1		1,315	1,170	109	125
1870	9	4	4	31	1	2	1,070	918	108	90
1871	4	2	3	33	2		1,042	621	65	58
1872	3	2	5	20	1	1	1,535	1,350	131	104
1873	9	5	2	19	3		1,361	1,288	116	123
1874	7	5	1	25		1	1,267	1,298	151	111
1875	12	4	7	20	1		1,187	1,125	191	99
1876	7	3	4	8	1	2	1,207	1,042	189	104
Total...	73	44	39	302	12	6	12,820	11,187	1,292	1,016

Table showing the number of degrees obtained, &c.—Continued.

Years.	Medicine.				Sciences.			
	Doctors.	Health officers.	Midwives of the first order.	Midwives of the second order.	Bachelors of the first order.	Bachelors of the second order.	Licentiates.	Doctors.
1867	444	6	134	66	1,563	461	103	13
1868	494	12	167	67	1,725	553	109	12
1869	509	11	188	51	1,831	629	122	17
1870	411	14	149	36	1,701	605	110	13
1871	308	4	146	13	1,361	537	51	4
1872	603	14	154	6	1,776	744	84	14
1873	583	22	172	42	1,905	706	107	8
1874	585	23	162	53	2,061	673	120	13
1875	590	21	191	47	2,111	686	187	11
1876	694	17	147	46	2,128	674	120	18
Total	5,131	144	1,610	427	18,162	6,268	1,113	123

Years.	Letters.				Pharmacy.			
	Bachelors of the first order.	Bachelors of the second order.	Licentiates.	Doctors.	Pharmaceutists of the first order.	Pharmaceutists of the second order.	Herbalists of the first order.	Herbalists of the second order.
1867	3,340	.....	101	5	70	24	83	.....
1868	3,859	.....	124	11	102	44	95	.....
1869	4,221	.....	123	7	109	80	136	.....
1870	3,957	.....	128	9	101	59	111	.....
1871	3,859	.....	89	4	75	35	84	.....
1872	4,371	.....	154	9	114	56	124	.....
1873	4,424	.....	140	14	130	87	156	.....
1874	4,324	1	134	15	110	115	149	.....
1875	3,099	1,234	149	12	100	89	103	.....
1876	927	2,375	131	12	70	64	99	.....
Total	36,381	3,610	1,273	99	1,001	653	1,140	.....

Table showing the number of degrees obtained, &c.—Continued.

Years.	Preparatory schools of medicine and pharmacy.				Schools preparatory to superior instruction in sciences and letters: Certificates of capacity.	Total number of diplomas and certificates.
	Health officers.	Pharmacists of the second class.	Midwives of the second class.	Herbalists of the second class.		
1867.....	70	172	281	25	3	9,860
1868.....	82	159	295	21	2	10,814
1869.....	69	212	261	18	1	11,384
1870.....	43	142	245	13	.....	10,074
1871.....	71	193	241	20	.....	8,935
1872.....	82	268	231	15	.....	11,971
1873.....	90	246	230	15	.....	12,012
1874.....	75	257	252	18	.....	12,006
1875.....	94	264	248	9	.....	11,892
1876.....	100	242	241	12	.....	10,604
Total.....	776	2,155	2,534	166	6	109,572

Budgets of the faculties and superior schools in 1878 and 1868.

Faculties and schools.	Budgets.		
	For 1878.	For 1868.	Increase in 1878.
	Francs.	Francs.	Francs.
Faculties of Catholic theology	166,400	114,235	52,165
Faculties of Protestant theology	79,600	51,565	28,035
Faculties of law	1,634,000	1,005,626	628,374
Faculties of medicine	1,821,500	834,500	987,000
Faculties of sciences	1,667,100	884,900	782,200
Faculties of letters	1,075,100	630,595	444,505
Superior schools of pharmacy	419,150	200,400	218,750
Expenses for all faculties in common	2,382,480	213,700	2,168,780
Total	9,245,330	3,935,521	5,309,809

A reduction of 80,000 francs made in the above budgets in 1878 and 40,000 in 1868 reduces the totals to 9,165,330 francs for 1878 and 3,895,521 francs for 1868.

THE SUPERIOR NORMAL SCHOOL.

This important institution was placed in 1871 under the direction of the late M. Ernest Bersot, whose character and ability eminently fitted him for the high position.¹ The school showed once again what can be

¹M. Bersot died in 1879 and was succeeded by M. Fustel de Coulauges, a prominent member of the Institute of France and a professor at the Sorbonne.

accomplished by intelligent efforts combined with a sentiment of professional duty. The most perfect discipline reigns among the students, and the good results achieved in the examination for degrees are a proof of the indefatigable devotion of their professors. The library of the institution has been increased by 15,210 volumes. The course of study lasts four years and includes the Greek language and literature, the Latin language and literature, the French language and literature, English and German languages and literature, philosophy, history, geography, grammar, higher mathematics, physics, chemistry, mineralogy, zoölogy, botany, astronomy, mechanics, drawing, music, and practical exercises in the laboratory.

LIBRARY OF THE UNIVERSITY.

The faculties of law and medicine of Paris and the superior school of pharmacy have each their special collection. The library of the University provides especially for the wants of the faculties of theology, sciences, letters, history, and philology. The number of its volumes has been increased from 40,000 to 109,135.

PRACTICAL SCHOOLS OF SCIENCE.

The number of laboratories where students could be admitted was very limited ten years ago. In a large number of faculties they only existed in name, and the scientific instruction was almost exclusively confined to the so called great lectures, which were above all intended to interest the public, but which were manifestly insufficient to give the students that persistent curiosity which can only be aroused by the personal handling of the apparatus. The two decrees of July 31, 1868, affirm the necessity of completing the theoretical lectures by practical exercises, manipulations, and conferences, and the necessity of establishing constant relations between professors and students, so that they are no longer strangers to one another. The same decrees provide that besides the laboratories of demonstration, to which all the students must be admitted, there shall be established special laboratories of research, reserved to the preparation of original works by the professors and other savants.

Immediately after the promulgation of these decrees a large number of conferences and laboratories were instituted and since that time practical exercises have been multiplied in the schools. There have been established 2 conferences for mathematics, 19 laboratories for physics and chemistry, 31 laboratories for natural sciences, 25 conferences for history and philology. The budget of these schools was 300,000 francs in 1877.

THE FRENCH SCHOOL AT ATHENS.

The members of the school reside at Athens but a few months of the year. As soon as the weather allows it, they visit in various parts

of Greece and Asia Minor the historic fields of antiquity, the ruins of cities and temples which have disappeared. The new school building recently erected cost 200,700 francs. The personnel consisted of 6 members in 1877.

FRENCH SCHOOL OF ARCHÆOLOGY AT ROME.

The members of the school at Athens were formerly compelled to remain three months in Italy before going to Greece. This disposition, which enabled the young men who had just left the superior normal school to visit Rome, Florence, or Venice, offered in fact more inconvenience than advantage. It was impossible to accomplish much in so short a period. A decree of 1873, signed by Thiers, created a course of archæology at Rome and fixed the time for remaining in Italy by future members of the school at Athens at one year. In November, 1874, the course of archæology adopted the name of French School of Archæology. Since 1876 the school has been in the Palazzo Farnese; in 1877 an appropriation of 51,000 francs was allowed for its definite organization. The school of Rome includes at present two groups: first, the members of the school of Athens who pursue their researches in the libraries and museums of Italy, in order to be better prepared for their work in Greece; second, the members of the school of Rome, who study all the documents, inscriptions, engravings, statues, and manuscripts which may throw some new light on the history of languages, institutions, and customs of Italy. Both groups are under the director of the school of Rome, who corresponds with his colleague at Athens relative to the studies and researches of members belonging to the school of Athens.

THE COLLEGE OF FRANCE.

The foundation of this great establishment coincided with the extensive movement in the sixteenth century which placed the study of arts, sciences, and letters on a new basis. The University of Paris, which was still imbued with the old scholastic spirit and under the control of theologians, showed itself more than ever hostile to all novelties. It refused to teach Hebrew, Greek, and all other branches from which the partisans of the reform derived their spirit of criticism and their ideas of liberty. The University was, therefore, opposed to the College of France founded by François I, and used all means to hinder its development. After great efforts by the University, the royal college was placed under its jurisdiction, but it did not receive the power to abolish it entirely. The royal professors or lecturers continued to instruct gratuitously, but they had no authority to confer degrees. The number of chairs increased, however, to such an extent that law, medicine, anatomy, the sciences, and letters were represented in the college with a liberty which was unknown in the faculties. This liberty is still to-day the rule in the College of France, which has been entirely separated from the University since the beginning of the present century. From

1871 to 1878 seven new chairs were added, viz, history of economic doctrines, modern philosophy, Assyrian philology and archæology, languages and literatures of Southern Europe, general anatomy, Greek inscriptions and antiquities, esthetics. The salary of the professors has been raised from 7,500 francs to 10,000 francs.

MUSEUM OF NATURAL HISTORY.

Not one of the great scientific establishments in France offers to the student resources comparable to those offered by the Museum of Natural History. Great improvements have been achieved since 1871; the building has been entirely transformed, so that to-day every professor is able to offer to his numerous pupils and to French and foreign savants all the facilities for research and work which they may desire. A second chair of botany has been created. The salary of the professors has been raised from 7,500 francs to 10,000 francs. The library has been increased by 31,182 volumes.

SPECIAL SCHOOL OF MODERN ORIENTAL LANGUAGES.

The decree of 1838 approved by M. Salvandy limited this school to the primary object of its foundation, viz, to prepare candidates for the French embassies, legations, and agencies in the eastern countries. The true object of the school had been overlooked; the spoken languages were so much neglected that France was obliged to employ and trust foreigners in political and commercial affairs with eastern nations. The decree of 1838 was soon forgotten, as M. Salvandy left the ministry before he had accomplished his intended reform. The present management dates from 1869. The decree of November 8 of that year was prepared by M. Duruy, then minister of public instruction. The number of lessons has been increased from 2 to 3 a week. The library has been increased from 800 to 11,000 volumes within ten years, and the salary of professors from 5,000 francs to 7,500 francs.

ACADEMIC ADMINISTRATION.

The decree of March 17, 1808, issued in pursuance of the law of May 20, 1806, provided that the University should be composed of as many academies as there were courts of appeal. But as two departments were under the control of a special inspector, who corresponded directly with the grand master, there were only 26 academies. Each academy had a rector, one or more academic inspectors, an academic secretary, and an academic council.

The rector was placed under the immediate orders of the grand master, by whom he was appointed for five years. He was charged with the administration of the faculties, lycées, and colleges. He had to visit these establishments as often as possible, to attend the examinations of the faculties, and to sign and award diplomas.

The academic inspectors were appointed by the grand master on the nomination of the rectors.

of several members appointed for three years by the minister of public instruction.

Algeria.—The legislation which regulates public instruction in France is also applicable to Algeria. This colony forms an academic district by itself. All public and private schools are under the authority of the French minister of public instruction, with the exception of some schools in the military territory, which are under the jurisdiction of the governor general.

Budget of the academic administration for 1878.

Nature of expenses.	Amount.	Total amount.
THE PERSONNEL.		
Salaries of the rectors:	<i>Francs.</i>	<i>Francs.</i>
1 vice rector (Paris)	18,000	
3 rectors, at 18,000 francs	54,000	
7 rectors, at 15,000 francs	105,000	
6 rectors, at 13,000 francs	78,000	255,000
Salaries of academic inspectors:		
8 inspectors of the Seine, at 8,000 francs	64,000	
1 inspector at Versailles	7,500	
26 inspectors of the first class, at 7,000 francs	182,000	
31 inspectors of the second class, at 6,500 francs	201,500	
33 inspectors of the third class, at 6,000 francs	198,000	
Supplementary indemnities	31,500	644,500
Salaries of the academic secretaries:		
1 secretary (Paris)	8,000	
5 secretaries of the first class, at 4,000 francs	20,000	
6 secretaries of the second class, at 3,500 francs	21,000	
5 secretaries of the third class, at 3,000 francs	15,000	64,000
Salaries of academic clerks:		
7 clerks at Paris, at 2,000 to 3,500 francs	19,000	
11 clerks in the departments of the first class, at 2,400 francs	26,400	
17 clerks in the departments of the second class, at 2,000 francs	34,000	79,400
Salaries of inspecting agents of the academy:		
28 agents of the first class, at 2,000 francs	56,000	
28 agents of the second class, at 1,800 francs	50,400	
33 agents of the third class, at 1,600 francs	52,800	159,200
Wages of servants:		
Janitors and servants		20,900
Colonial pay of officials in Algeria:		
Rector, inspectors, secretary, &c		11,050
CONTINGENT.		
Office expenses of the rectors		32,938
Travelling expenses of the rectors		19,600
Travelling expenses of the inspectors		81,000
Total in 1878		1,407,588
Budget of 1868		1,216,080
Increase in 1878		191,508

PRESENT CONDITION OF THE FACULTIES.

1. *Faculties of Catholic theology.*—Appointments are made by decree on the nomination of the minister of public instruction and after designation of one candidate by the bishop or archbishop.

The salaries were fixed by decree of January 14, 1876, as follows: Professors in Paris receive from 5,500 to 6,500 francs and the professors in the departments from 3,500 to 5,500 francs.

By the decree of December 22, 1830, no one can be appointed archbishop, bishop, vicar general, member of the chapter, or pastor of a chief city of a department or arrondissement unless he has obtained the degree of licentiate of theology or for fifteen years exercised the functions of a curate. Degrees, in fact, are no longer an absolute necessity for any ecclesiastical function.

The budget of the faculties of Catholic theology amounted to 166,400 francs in 1878, against 114,235 francs in 1868. There are five Catholic faculties, viz: Paris, with 7 chairs; Aix, with 5 chairs; Bordeaux, with 6 chairs; Lyons, with 5 chairs; and Rouen, with 5 chairs.

2. *Faculties of Protestant theology.*—The faculty of Strasburg was transferred to Paris by decree of March 27, 1877. The faculties of Paris and Montauban have each a seminary in which the government sustains scholarships filled by the minister of public instruction.

The salaries of the professors range from 4,500 to 6,500 francs. The budget of the Protestant faculties amounted to 79,600 francs in 1878, against 51,565 in 1868. The faculty of Paris has four and that of Montauban eight professors.

3. *Faculties of law.*—The professors at Paris receive a salary of 15,000 francs, and those in the departments from 6,000 to 11,000 francs.

The budget in 1878 amounted to 1,634,000 francs, against 1,005,626 francs in 1868.

The number of faculties of law is 12, viz: Paris, with 19 chairs, 19 professors, and 10 agrégés; Aix, with 9 chairs, 7 professors, and 2 agrégés; Bordeaux, with 11 chairs; Caen, with 9 chairs, 9 professors, and 4 agrégés; Dijon, with 9 chairs, 8 professors, and 1 agrégé; Douai, with 9 chairs, 3 professors, and 9 agrégés; Grenoble, with 9 chairs, 7 professors, and 2 agrégés; Lyons, with 10 chairs, 2 professors, and 10 agrégés; Nancy, with 9 chairs, 7 professors, and 4 agrégés; Poitiers, with 9 chairs, 9 professors, and 2 assistants; Rennes, with 10 chairs, 7 professors, and 3 agrégés; and Toulouse, with 11 chairs, 11 professors, and 4 agrégés.

4. *Faculties of medicine.*—The salaries of the professors are at Paris 13,000 francs and in the departments from 6,000 to 10,000 francs. The agrégés receive from 3,000 to 4,000 francs. The budget for 1878 amounted to 1,821,500 francs, against 834,500 francs in 1868. The faculty of medicine of Paris has 64 professors and assistants; the faculty of Montpellier, 35; and the faculty of Nancy, 30.

5. *Faculties of sciences.*—At Paris the professors receive a salary of 13,000 francs and in the departments from 6,000 to 10,000 francs. The agrégés receive 2,000 francs. The budget for 1878 amounted to 1,657,100 francs, against 884,900 francs in 1868. The faculty of Paris has 19 chairs and 32 professors and assistants; Besançon, 7 chairs and 7 professors and assistants; Bordeaux, 8 chairs and 9 professors and assistants; Caen, 6 chairs and 6 professors; Clermont, 6 chairs and 5 professors and 1 assistant; Dijon, 6 chairs and 6 professors; Grenoble, 7 chairs and 7 professors; Lille, 8 chairs and 9 professors and assistants; Lyons, 9 chairs and 11 professors and assistants; Marseilles, 7 chairs and 6 professors and 1 assistant; Montpellier, 7 chairs and 7 professors and 1 assistant; Nancy, 8 chairs and 10 professors and assistants; Poitiers, 6 chairs and 5 professors and 1 assistant; Rennes, 7 chairs and 6 professors and 1 assistant; Toulouse, 8 chairs and 11 professors and assistants.

6. *Faculties of letters.*—The professors at Paris receive a salary of 15,000 francs and in the departments from 6,000 to 11,000 francs. The agrégés receive from 2,000 to 3,000 francs. The budget of the faculties of letters in 1878 amounted to 1,075,100 francs, against 630,595 in 1868. The faculties of letters are: Paris, with 13 chairs and 20 professors and assistants; Aix, with 5 chairs and 6 professors and assistants; Besançon, with 5 chairs and 5 professors; Bordeaux, with 8 chairs and 11 professors and assistants; Caen, with 6 chairs and 5 professors and 1 assistant; Clermont, with 5 chairs and 6 professors and assistants; Dijon, with 5 chairs and 4 professors and 1 assistant; Douai, with 5 chairs and 5 professors and 1 assistant; Grenoble, with 5 chairs and 5 professors; Lyons, with 8 chairs and 10 professors and assistants; Montpellier, with 6 chairs and 8 professors and assistants; Nancy, with 7 chairs and 12 professors and assistants; Poitiers, with 5 chairs and 6 professors and 1 assistant; Rennes, with 5 chairs and 5 professors and 1 assistant; Toulouse, with 7 chairs and 8 professors and assistants.

7. *Superior schools of pharmacy.*—The salary of the professors ranges from 8,000 to 10,000 francs at Paris and from 6,000 to 8,000 francs in the departments. The budget of these schools amounted to 439,150 francs in 1878, against 200,400 francs in 1868. The superior school of pharmacy of Paris has 9 chairs and 18 professors and assistants; Montpellier has 5 chairs and 5 professors and 1 assistant; and Nancy, 5 chairs and 5 professors and 1 assistant.

8. *Full course schools (écoles de plein exercice) and preparatory schools of medicine and pharmacy.*—The preparatory school of medicine and pharmacy of Marseilles was declared a full course school by decree of November 26, 1875. The school has 18 chairs and 27 professors and assistants. The school of medicine and pharmacy of Nantes has 17 chairs and 25 professors and assistants. The school of Marseilles granted 42 diplomas in 1876, and the school of Nantes 29 in the same year. The preparatory schools of medicine and pharmacy are: Algiers, with 9

chairs; Amiens, with 10 chairs; Angers, with 11 chairs; Arras, with 8 chairs; Besançon, with 8 chairs; Bordeaux, with 13 chairs; Caen, with 9 chairs; Clermont, with 10 chairs; Dijon, with 8 chairs; Grenoble, with 10 chairs; Limoges, with 10 chairs; Lyons, with 9 chairs; Poitiers, with 10 chairs; Rheims, with 10 chairs; Rennes, with 13 chairs; Rouen, with 12 chairs; Toulouse, with 13 chairs; and Tours, with 10 chairs.

9. *Preparatory schools for superior education in sciences and letters.*—These schools were established by decree of August 22, 1854. The course of study lasts two years, and is essentially practical, as the students intend to enter upon commercial and industrial careers. The branches of instruction are mathematics, mechanics, physics, chemistry, natural history, French literature and history, physical and political geography, and drawing. These schools are situated at Angers, with 9 chairs; Chambéry, with 9 chairs; Nantes, with 9 chairs; and Rouen, with 11 chairs.

THE LIBRARY OF THE UNIVERSITY.

This collection owes its origin to the liberality of a former rector, Gabriel Petit de Montempuys, who bequeathed his library to the University July 11, 1762. To this first collection of 4,000 volumes a series of more important books was added by the purchase of the library of the Jesuits after the suppression of their order. The Jesuit college Louis-le-Grand was at the same time added to the University. Three years later, in 1767, the University purchased the library of a former rector, Paul Hamelin.

The solemn opening of the library took place December 3, 1770, but the catalogue was only completed several months later, March 7, 1771. This document shows that the collection consisted at that time of 19,353 printed volumes and 509 manuscripts. Until the close of the year 1846 the library of the University was only open to members of the University on Mondays, Wednesdays, and Saturdays. The budget amounted to 16,000 francs. November 20, 1846, the budget was raised to 35,200 francs, and from January 1, 1847, the public was also admitted to the library from 10 A. M. to 3 P. M. every day. For members and students of the University it was open from 7 to 10 P. M. daily. The total number of volumes was 109,235 in 1878, when the budget amounted to 36,000 francs.

PRIVATE INSTITUTIONS FOR SUPERIOR EDUCATION (ENSEIGNEMENT SUPÉRIEUR LIBRE).

The law on the liberty of superior education of July 26, 1875, made this phase of instruction free and authorized private citizens and associations to establish free faculties and universities. Thus far only the Catholic ecclesiastical authorities have availed themselves of this privilege and established several institutions which are making rapid progress. The law authorizes these private institutions to confer degrees,

and this seems to be one of the reasons why the leaders of the reform propose to alter the work of 1875. The present minister of public instruction, Mr. Jules Ferry,¹ has submitted a bill to the Chambers in which he proposes to replace the University in its old position and to limit the powers of the so-called free universities and free faculties. The bill provides that no member of a religious body which is not recognized by the state shall be free to teach, and that academic degrees shall be open only to candidates who are examined by the state universities and are entered on their books.

The following are the free universities and faculties established by the Catholic ecclesiastical authorities:

1. *The Catholic University of Angers*, established December 5, 1877. This institution has a faculty of law with 16 chairs and courses, a faculty of sciences with 11 courses, and a faculty of letters with 12 courses.

2. *The Catholic University of Lille*, established in 1875. This university has a faculty of law with 19 chairs and courses, a faculty of medicine and pharmacy with 19 chairs and 26 complementary courses, a faculty of sciences with 11 chairs, a faculty of letters with 7 chairs, and a theological college with 11 courses.

Regular attendance at the lectures is strictly enforced at Lille. Examinations are obligatory for all the faculties, and the parents of students are informed of the progress their sons have made and their conduct during each term.

3. *The Catholic University of Lyons*, established in 1877. This institution has a faculty of law with 10 chairs and 6 courses and conferences, a faculty of sciences with 7 chairs, and a faculty of letters with 6 chairs.

4. *The Catholic University of Paris*, organized in 1876. This university has a faculty of law with 15 chairs, 3 courses, and 11 conferences, a faculty of letters with 10 chairs, and a faculty of sciences with 10 chairs.

5. *The Catholic faculty of law at Toulouse*. This faculty was established November 16, 1877, and has at present 13 chairs.

¹As this work is going through the press M. Ferry has been superseded by M. Paul Bert.

The following table shows what the five free universities and faculties have accomplished since 1875:

Table showing the condition of the free universities and faculties from 1875 to 1878.

Place.	Number of matriculated students.	Examinations passed.		Diplomas obtained.	
		Before the state faculties.	Before the special jury.	From the state faculties.	From the special jury.
1875-76.					
Faculties of law:					
Angers	192	24		3	
Lille	191	25		6	
Lyons	244	64		10	
Paris	504	23	52		6
Total	1,131	136	52	19	6
Faculty of sciences:					
Paris	6				
Faculty of letters:					
Paris	36	1		1	
1876-77.					
Faculties of law:					
Angers	316	63		14	
Lille	239	12	30	2	11
Lyons	448	91		19	
Paris	761	42	145	8	40
Total	1,764	208	175	43	51
Faculty of medicine and pharmacy:					
Lille	21				
Faculties of sciences:					
Lille	7				
Paris	32	4		3	
Total	39	4		3	
Faculties of letters:					
Angers	24	1			
Lille	33	2		2	
Paris	41	9	2	3	1
Total	98	12	2	5	1

Table showing the condition of the free universities, &c.—Continued.

Place.	Number of matric- ulated students.	Examinations passed.		Diplomas obtained.	
		Before the state fac- ulties.	Before the special jury.	From the state fac- ulties.	From the special jury.
1877-'78.					
Faculties of law:					
Angers	468	82	38	25	13
Lille	209	13	52	3	14
Lyons	424	108	50	27	11
Paris	1,041	105	224	22	69
Toulouse	208	34	.....	18	.....
Total	2,350	342	364	95	107
Faculty of medicine and pharmacy:					
Lille	359	.....	.....	.....	.....
Faculties of sciences:					
Angers	16	.....	.....	.....	.....
Lille	18	2	.....	.....	.....
Lyons	8	.....	.....	.....	.....
Paris	29	3	.....	1	.....
Total	70	5	.....	1	.....
Faculties of letters:					
Angers	16	2	.....	.....	1
Lille	48	3	.....	.....	.....
Lyons	88	2	.....	.....	1
Paris	37	7	.....	.....	3
Total	189	14	.....	.....	5

REPEAL OF THE PRINCIPAL FEATURES OF THE LAW OF 1875.

The law of July 26, 1875, authorized the establishment by private citizens or associations of free or private universities. The bishops of France availed themselves of this privilege and established the so-called Catholic universities of Angers, Lille, Lyons, Paris, and Toulouse. The statistics given in the above table show that these institutions have made rapid progress. The majority of the liberal party in France saw, however, that they had made a mistake in granting private institutions the privilege of conferring degrees. M. Jules Ferry had always been opposed to the law of 1875, and as soon as he became minister of public instruction, in 1879, he at once submitted a bill to the Chambers not only repealing the privileges voted to private universities in 1875, but also excluding from all grades of public and private schools teachers who are members of non-authorized religious orders. This bill was passed with the exception of Article 7, which excluded non-authorized religious orders from the schools. Soon after the passage of the bill, of which the

following is the text, the former Catholic universities assumed the name of Catholic institutes.

THE FERRY BILL ON THE LIBERTY OF SUPERIOR INSTRUCTION.

Following is the text of M. Jules Ferry's original bill on the liberty of superior instruction, submitted to the Chambers in March, 1879:

ARTICLE 1. The examinations and practical tests which determine the granting of degrees can only be made in the superior state schools.

ART. 2. Students of public and private superior schools are subject to the same regulations as to study, especially as regards age, capacity, matriculation, practical work, probation in hospitals and dispensaries, &c.

ART. 3. Students of private superior schools have to register their names in the state faculties at a date fixed by the regulations. The matriculation is gratuitous both for students of state and private schools. The examination fees shall be fixed by the superior council of public instruction after consultation with the ministry of finance.

ART. 4. The law recognizes two kinds of superior schools: (1) The schools or groups of schools established or maintained by the communes or the state, which take the name of universities, faculties, or public schools; (2) the schools established or maintained by private individuals or by associations, and which can take the name of private schools only.

ART. 5. The titles and degrees of *agrégé*, doctor, licentiate, bachelor, &c., can only be conferred upon persons who have undergone the prescribed examinations before the state faculties.

ART. 6. The opening of isolated courses is subject to the provisions of the law of July 12, 1875.

ART. 7. No person belonging to a non-authorized religious congregation (priest, brother, or sister) is allowed to teach in a public or private school of any kind.¹

ART. 8. No private school or association organized for educational purposes can be recognized as an institution of public utility, except by law.

ART. 9 confirms the penalties fixed by the law of 1875.

ART. 10. All laws, decrees, and regulations contrary to the present law are abrogated.

SCHOOLS OF THEOLOGY.

According to the *Annuaire de l'enseignement libre pour 1879*, France had 93 higher theological seminaries (*grands séminaires*) for the training of Catholic priests; 34 of these seminaries are under the control of secular priests and the rest under that of religious orders. The number of students is not given. Besides the "*grands séminaires*" there are the "*petits séminaires*" (preparatory seminaries), from which the higher seminaries are recruited. Every diocese has at least one preparatory seminary. The number of pupils is not reported. The various religious orders have their own schools of theology, in which novices are trained for their calling.

¹This article passed the Chambers but was rejected by the Senate.

THE SUPERIOR NORMAL SCHOOL AT PARIS.

The following translation of a letter addressed to the Commissioner of Education shows the present organization of this excellent school:

SUPERIOR NORMAL SCHOOL,
Paris, October 2, 1880.

SIR: The director of the Superior Normal School has received your letter of June 9, and I am directed to answer it.

You may have seen in the report of M. du Mesnil what our school is. It prepares for the competitive examinations. It trains professors, savants, writers. The course of study lasts three years. At the end of the first year, the student may present himself for the licentiate of letters or the licentiate of science, according to the division of the school to which he belongs. At the end of the third year the student presents himself for one of the orders of "aggregation" established in the university: philosophy, history, letters, grammar, for students of the section of letters; mathematics, physics, for students of the section of sciences. The licentiate and the aggregation are obtained by means of competitive examinations (*concours*), open to all those who fulfil certain specified conditions. At these examinations the students find themselves, therefore, in the presence of foreign competitors. The jury is, besides, composed of professors or high functionaries of the University who are strangers to the school. Very often the students of the school receive the first places. The school does not judge its own work; hence its merit and good reputation. Its professors have nothing to do with university degrees.

You ask for the latest programme of studies of our school. It is very difficult to satisfy you in this respect, for we have no programme, properly speaking. The professors who have charge of the first year's course conform their lessons to the programme of science; but while they follow this programme they go beyond it. The professors who have charge of the third year assist their pupils in the preparation of the programme of aggregation. Of course these programmes are not made at school, but by the jury of the competitive examinations. The programme for the licentiate of letters is modified every three years; those of the different aggregations vary every year.

The course of study for the section of letters comprises, moreover, philosophy, ancient and modern history, classical philology, the history of Greek, Latin, and French literature, and, finally, the modern languages. It is not to be understood that all these subjects are studied in their whole extent: the aim is less to know everything than to know well what is studied.

The professor of philosophy himself arranges every year, with entire liberty, the subject he wishes to treat: the professor of history limits his course to a civilization, a period, a determined country, and there he begins the true history anew by going to the sources and by a careful research in documents and texts. All the other professors act in the same way: their aim is to work before their pupils, in order to make them capable of working independently. Erudition is found in books, and the students of the school know how to find it. But what is found nowhere, and what the professor alone can impart, is method. There is the true connecting link of the two sections of the school, sciences and letters. The students of science have at their disposal large and celebrated laboratories, that of M. Sainte-Claire Deville and that of M. Pasteur. Experiments are made before their eyes. They see how a discovery is made. All this is living pedagogy.

Besides, the student very often takes the place of the professor; the student gives the lesson and the professor listens. You may have seen in M. du Mesnil's report what our "conferences" are. They, too, form a peculiarity of the school. Moreover, ordinarily a student has nothing to do but to learn; here he must teach, not everything, but a subject which he masters, which he has studied thoroughly, and which he has,

in many cases, selected himself. After the lesson the professor resumes his work and criticises, if necessary, what he has heard. All the students take part in the discussions, and it is by this method that everybody takes an interest in the search of the truth. This is, as it were, the fundamental principle of the school.

These are, dear sir, a few remarks concerning the Superior Normal School intended to show its original character. Should you desire information on other points, we shall be pleased to furnish it.

Accept, dear sir, the assurance of my respectful consideration.

HENRY MICHEL,

Secretary of the Superior Normal School, Agrégé of Philosophy.

SCHOOL OF POLITICAL SCIENCES.

The School of Political Sciences is situated at No. 15 Rue des Saints-Pères, Paris. While a private institution, it has for trustees such men as Senator Laboulaye, Count L. de Ségur, M. Taine of the Academy of France, Baron d'Eichthal, several members of the Institute of France, of the French Chambers, and of the diplomatic corps.

The school is in charge of Director Émile Boutmy, member of the Institute and of the French superior council of public instruction. Among the professors, who number twenty-nine, we notice the names of M. Levasseur, member of the Institute; M. de Foville, chief of the bureau of statistics; M. Glasson, professor at the faculty of law, and M. Janet, member of the Institute. The course of study lasts two years and embraces the following subjects: Comparison of administrative organizations, details of various systems of administration, financial systems at home and abroad, public revenues and taxes, public accounts, financial legislation, political economy, comparison of commercial legislation in various countries, history of commercial treaties since 1786, the French customs system, history of the formation of the principal states and their international relations in the Middle Ages, history of treaties from the peace of Westphalia till 1789, analysis of the principal treaties from 1648 to 1789, diplomatic history of Europe from 1789 to the present time, organization of diplomatic services, constitutional history of France, England, and the United States during the last 100 years, parliamentary and legislative history of France from 1789 to 1852, analysis of the constitutions of Belgium, Switzerland, Germany, Austria, Hungary, and Italy, the law of nations, international law as a result of treaties (capitulations, extradition, industrial property, &c.), consular service, geography and ethnography, commercial statistics, industrial and commercial geography, comparison of civil legislation, and modern languages.

The sessions begin in November and close in June. The tuition fees for all the courses amount to 130 francs a year; for single courses the charges are from 25 to 40 francs a week. For the use of the library the student pays 25 francs a year. The school is open every day, except Sundays, from 8.30 A. M. to 4 P. M.

At the end of the course the students who have successfully passed the prescribed examination receive a diploma.

In order to give it a permanent character, it is the intention of the French government to adopt the school.

CENTRAL SCHOOL OF ARTS AND MANUFACTURES, PARIS.

The account of this school here given is taken from the *Histoire de l'École Centrale des Arts et Manufactures depuis sa fondation jusqu'à ce jour*, by Ch. de Comberousse, Paris, 1879.

HISTORICAL SKETCH.

The Central School of Arts and Manufactures, which Perdonnet styled the "Sorbonne industrielle" of France, was founded in 1829 by private initiative. Everybody knows what importance industry acquired under the Restoration. Great desires and great thoughts were agitating men's minds. From this time may be dated the preliminaries of the creation of the École Centrale. The four founders of the institution were MM. Olivier, Pécelet, Lavallée, and Dumas. Of this group of eminent men, M. Dumas, the well known chemist, alone survives.

The school was opened November 3, 1829. The title of its first programme indicated its object; it was "Central School of Arts and Manufactures, intended to train civil engineers, directors, and foremen of manufactories, &c., founded, with the approval of M. Vatimesnil, minister of public instruction, by M. Lavallée, director, and MM. Benoit, Dumas, Olivier, and Pécelet, professors."

During the first year the courses were followed by 140 pupils, 48 of whom were over 21 years of age. These unexpected pupils were ambitious manufacturers, who did not hesitate to quit their establishments for a while in order to acquire at the École Centrale the scientific training of which they felt the need. Foreigners, too, responded to the call of the school. Pupils arrived from Spain, Greece, Germany, Switzerland, and America. The programmes of the school had been translated into nearly every language, and it may be said that they have become starting points for numerous improvements introduced into some of the scientific schools of Europe.

The first course of lectures was opened by Professor Pécelet. He gave a long series of lectures on national industries. His course on industrial physics was so highly appreciated that it has been imitated in foreign countries. The first director of the school was M. Lavallée. He had charge of the administration, representation, and correspondence of the school. A council composed of professors aided him in this task.

During the first years the age required for admission was fixed at 15, but no maximum age was fixed. As it became evident, however, in 1835, that the age of 15 was too low for admission to the courses, which require a certain maturity of intellect, the minimum age was fixed at 61, which age was also required for admission to the polytechnic school. No maximum age was, however, prescribed, and the school has had no

reason to regret it. The statistics have never indicated that the older pupils were less studious, less docile to discipline, or less successful in their studies than their younger comrades. If the maximum age of 20 had been adopted, as is the case at the polytechnic school, the *Ecole Centrale* doubtless would have prevented the admission of more than half of those who have done most honor to the school and who have derived the greatest benefit from its lessons.

PRESENT CONDITION.

Under the wise management of its eminent directors and professors, the *Ecole Centrale* has steadily improved from the outset, and the number of students has risen from 140 in the first school year (1829-'30) to 550 in 1879. With much skill and energy M. Lavallée directed the institution till 1862, when he was succeeded by M. Perdonnet. In 1857, when the number of students had risen to 475 and the school was highly prosperous (the net income exceeding 100,000 francs), M. Lavallée, refusing brilliant offers of an association of former students, proposed to turn over the institution gratuitously to the state. This was carried out, the government taking upon itself the obligation to pay a life pension to the founders and first professors of the school and to some of their dependents.

Since its adoption by the state in 1857, the school has continued under the ministry of agriculture, commerce, and public works. Its main object is to train engineers for all branches of industry and for public works the direction of which does not necessarily belong to the government engineers.

Diplomas of engineers of arts and manufactures are delivered annually by the minister to the pupils designated by the school council as having passed through the entire competitive examination in a completely satisfactory manner. Certificates of capacity are granted to those who, not having passed all the subjects of the examination, have nevertheless given proof of sufficient knowledge in the most important branches.

The school receives day scholars only. Foreigners are admitted on the same conditions as natives. The duration of the studies is three years. The tuition fees are 800 francs a year; this includes fees for manipulations. Assistance may be given by the state to needy pupils recommended by the high position they take in the examinations of the school. This aid is for one year only, but may be continued, and even augmented, in favor of pupils who render themselves worthy of it.

Admission to the school can only be obtained by means of competitive examination. The examination is public in so far as it is oral; it takes place every year.

All candidates must prove that they were 17 before the 1st of January of the year in which they present themselves for examination; they also must produce certificates of vaccination and of good character.

Candidates pay no examination fees. At the conclusion of the examination the list of pupils to be admitted is definitely fixed by the minister on the recommendation of the school council.

From its foundation to the present year the school has furnished industry with 4,054 engineers, 552 of whom have been foreigners; all these have gained the engineer's diploma. The total number of students admitted is 7,266. It will be readily conceived what an influence the school must have exercised on French industry and the international relations of the country. Especially in the construction of railways in France since 1835 has its influence been apparent. The council of the school, foreseeing this field of activity, in 1834 appointed a special course of lectures on railway construction—the first course of this kind in Europe. In 1863, among former students of the school were 28 railway managers and chief engineers, and 79 principal and 56 ordinary engineers. Through the special education provided in the school, French manufacturers were enabled to pass easily from the system of universal to that of limited protection, and a large number of iron founders, machine constructors, farmers, manufacturers of chemical products, sugar, paper, &c., have received their scientific knowledge and skill from the *École Centrale*. At the Universal Exhibition of London, in 1851, 3 council medals and 17 prize medals were awarded to former pupils of the school, and at the Universal Exposition of Paris in 1855 they received 10 appointments to the Legion of Honor, 10 grand medals of honor, 17 medals of honor, 50 first class medals, 21 second class medals, and 14 honorable mentions.

At the Universal Exposition of Paris in 1867 more than 500 former pupils participated as exhibitors or collaborators; 248 received awards of all kinds, of which 5 were grand prizes, 65 gold medals, and 8 appointments to the Legion of Honor. At the Exposition in 1878 the number of former pupils who participated in some capacity was 841, of whom 35 were members of the international jury. Of the 841, 340 were decorated or received prizes.

COURSE OF STUDY.

The course of study lasts three years and is arranged as follows:

First year.

(Figures in parentheses following the subjects taught indicate the number of lessons.)

Days.	8.30 A. M.	11.30 A. M.	From 1 to 4 P. M.
Monday	Machine construction (22). Natural history (35).	Architecture (24). Mechanics (45).	Exercises in chemistry (20, of 2 hours each). Exercises in physics (16, of 30 minutes each). Exercises in mineralogy (14, of 30 minutes each). Exercises in practical stereotomy (4, of 3 hours each). Exercises in practical topography (2, of 3 hours each). Exercise in house construction (1).
Tuesday	Chemistry (60)...	Mathematics (30). Geology and mineralogy (30).	
Wednesday ..	Descriptive geometry (60).	Physics (60).	
Thursday ...	Elements of machine construction.	Architecture, mechanics.	
Friday	Chemistry	Mathematics, geology, and mineralogy.	
Saturday	Descriptive geometry.	Physics.	Exercises in descriptive geometry (16). Exercises in physical science (2). Exercises in mechanical science (2). Exercises in architecture (15). Exercises in machine construction (25).

Second year.

(Figures in parentheses following the subjects taught indicate the number of lessons.)

Days.	8.30 A. M.	11.30 A. M.	From 1 to 4 P. M.	
Monday	Zoötechnics (20). Steam engines (38).	Machine construction (50). Industrial legislation (20).		Visits to ateliers and manufactories. Execution of 9 special projects.
Tuesday	Industrial physics (45). Working of mines (24).	Application of the resistance of materials (25). Technology (35).		
Wednesday..	Practical mechanics (55).	Civil construction (50). Classification of plants (20).	From 2.30 to 4 P. M. Analytical chemistry (50).	
Thursday ...	Zoötechnics, steam engines.	Machine construction, industrial legislation.		Exercises in chemistry (27, of 3 hours each). Exercises in topography (3, outside of the school). Exercises in industrial physics (4, of 4 hours each).
Friday	Industrial physics, working of mines.	Application of the resistance of materials, technology.		
Saturday....	Practical mechanics.	Civil construction, classification of plants.	Analytical chemistry.	

Third year.

(Figures in parentheses following the subjects taught indicate the number of lessons.)

Days.	8.30 A. M.	11.30 A. M.	From 1 to 4 P. M.	
Monday	Metallurgy (54)..	Working of mines (16). Railways (42)....		Execution of 6 special projects. Projects for competition from June 25 to July 25.
Tuesday.....	Industrial chemistry (48).	Machine construction (53).	From 2.30 P. M. to 4 P. M.	
. . .			Rural economy (20).	
Wednesday..	Practical mechanics (45).	Public works (55).	Industrial legislation (10).	Exercises in chemistry (16). Commercial essays. Visits to ateliers and manufactories.
Thursday ...	Metallurgy	Working of mines. Railways.		
Friday	Industrial chemistry:	Machine construction.	Rural economy.	
Saturday....	Practical mechanics.	Public works.	Industrial legislation.	

The school opens at 8.30 A. M. ; lessons from 8.30 to 10 A. M. ; breakfast from 10 to 11 A. M. ; roll call from 11 to 11.30 A. M. ; lessons from 11.30 A. M. to 1 P. M. ; practical work from 1 to 4 P. M.

ÉCOLE DES PONTS ET CHAUSSEES.

The School of Bridges and Roads was established during the last century to train engineers for the government service.

The students are divided into three classes: engineer or regular students, private students, and attendants on lectures (auditeurs). The engineer students, all Frenchmen, are taken exclusively from pupils who have finished the course at the polytechnic school. In addition to the engineer students, the school admits both French and foreign private students. These students are allowed, after a satisfactory examination, to attend the lectures. The simple hearers are admitted, without examination, by the director. The two last classes of students cannot receive the diploma of government engineer.

The course of instruction comprises the construction of roads, bridges, railways, canals, maritime ports; the improvement of rivers; civil architecture; applied mechanics (resistance of materials and hydraulics); steam engines; agricultural hydraulics; the geological and mineralogical knowledge indispensable to engineers; administrative law; political economy and fortification; graphic works; drawing; shading; preparation of papers and competition on projects of works of art and construction; levelling and surveying; drawing plans of machines and buildings; visiting manufactories; working of railways; electric telegraphy; photography; pisciculture; vicinal service; sanitary improvements of towns, &c. The course of study lasts three years. The lectures commence in the early part of November. At the close of the month of May, the engineer students are sent into the departments to be exercised in engineering studies under the direction of the chief engineers of the service. This experience is continued till October.

In order to enable French or foreign candidates to pass the preliminary examination, a preparatory course has been instituted for the benefit of young men desirous of admission as private students. The preparatory course of study continues for a year and comprises: (1) the differential calculus, the integral calculus, and mechanics; (2) physics and chemistry; (3) descriptive geometry, stereometry, and the elements of architecture; (4) linear drawing, model drawing, and shading.

All the candidates for admission must pass a preliminary examination, both for the preparatory course and for the position of private students. This examination is obligatory in all cases. The school has one of the richest collections of works in existence relating to engineering science, the number of volumes being not less than 40,000. Engineers are admitted at all times for the purpose of consulting works or manuscripts. Engineers not residing in Paris are authorized to borrow books from the library.

The galleries of models of the school contain more than 1,200 models or designs, divided into 11 classes, corresponding to the various courses of construction. Many of these models are of great value and possess

a special interest in consequence of the delicacy and excellence of their construction.

The origin of the office of designs and drawings is contemporary with the establishment of the school, and the principal duty performed here is the preparation of all draughts or designs necessary for demonstration in the lecture room. With the aid of a new and powerful auxiliary, the photographic studio, this office is employed simultaneously in preparing the periodical publication known under the name of "Portfolio or collection of designs distributed to the students" and in compiling the Atlas of the Ports of France, the first four volumes of which have been published. The same office performs the additional work entailed by the different universal exhibitions.

The object of the school's depot for instruments of precision is to preserve, in good condition, the instruments used by the students for land work. The operations of this department have been greatly extended, and they now embrace orders for new instruments and the reception and repairs of all instruments granted by ministerial decision to the engineers in France and the French colonies. The "depot" also receives and stores the instruments for which engineers have no further use. These instruments are thoroughly repaired and forwarded to places where they are required. The depot of machines corresponds to a requirement of the same kind. It orders, receives, and forwards all machines and apparatus the purchase of which is requested by engineers and approved by the minister. In it are centralized and stored the most valuable materials that are left without any definite use when works are finished.

The scientific instruction of the courses of lectures is completed every year by a series of experiments calculated to give to the students practical ideas as to the elements of construction. This was the object of the establishment of the experimental workshop at the Trocadéro. In addition to this, it encourages the progress of the science of construction by furnishing the professors of the school and other engineers with the means for study and experiments difficult to procure in any other way without considerable expense.

The organization of the experimental workshop at the Trocadéro was commenced in 1867; it is now nearly completed.

After the fine discoveries of Vicat, it was considered necessary to familiarize the engineer students with chemical analysis as applied to the materials of construction. With this view a small laboratory, established in 1845, was soon utilized for the purpose of furnishing engineers with the necessary information upon chemical or physical subjects relating to their particular branches of service. The results obtained were sufficiently important to decide the government to order the definite organization of an office for assaying, to be annexed to the laboratory. The laboratory undertakes all chemical analyses and assays relative to materials of construction and substances connected with agriculture, espe-

cially researches applying to lime, cement, mortar, plaster, building stone, bricks, clay, sand, potable water and water for irrigation, arable soils, manures and improvements.

The researches of the laboratory are not carried on for the exclusive advantage of government engineers; private individuals may also have recourse to them in case of need. It is only necessary to send a written application to the director of the school, inclosing a sample of the substance to be analyzed. The results of the process are transmitted gratuitously to the person making the application; he has only to pay the expenses of correspondence. From the date of its establishment to the close of 1872 the laboratory has received 5,096 applications for analysis, comprising nearly 23,000 samples.

THE NATIONAL SCHOOL OF MINES AT PARIS.

This school was first instituted in 1778, and subsequently reëstablished in 1816. The control is vested in the minister of public works, and the principal object of the school is to furnish the training necessary for the engineers required by the government for the service of the mines.

Independent of the regular or engineer students, the school admits private students, foreign students, and free students or hearers. The engineer students, who are taken exclusively from those leaving the polytechnic school, are alone eligible for the government service, and are appointed by decree.

Private students are prepared for the various positions offered by commerce and manufactures, and in particular to enable them to become engineers or directors of mines or mineral works. They are admitted by competition.

Foreign students are admitted by a decision of the minister of public works, at the request of the ambassadors or chargés d'affaires of foreign powers, on the condition of successfully passing an examination with regard to competency, which examination takes place once a year, in the latter half of the month of October.

The free students are, at their own request, simply authorized by the minister to follow the courses of lectures and practical studies of the school. The private, foreign, and free students are expected to pay to the school a sum of 35 francs for wear and damage of instruments, &c.

The course of study is identical for the various classes of students, but the foreign and free students can only participate in the practical studies in proportion to the number of places at disposal in the laboratory and drawing school.

At the close of each scholastic year the engineer and private students pass examinations in the courses followed. Foreign students have the option of presenting themselves, but free students are not admitted to these examinations.

On leaving the school, engineer students are appointed *engineers of the third class*, and private students whose acquirements are *satisfac-*

tory receive a diploma of merit, and are authorized to bear the distinction of brevetted student of the Paris National School of Mines.

Foreign students receive simply the brevet of merit.

To facilitate admission to the ranks of private students, preparatory courses were instituted at the school of mines by a ministerial decision of December 26, 1844. The preparatory studies consist of four oral courses of lectures and of practical exercises. The courses comprise: (1) ideas of infinitesimal analysis and mechanics; (2) descriptive geometry, pure and applied; (3) physical sciences, in relation to gas and vapors, heat, and optical instruments; (4) chemistry in general.

The principal objects of the instruction given at the school are the opening and working of mines and the treatment of mineral substances.

It embraces three years of study, and comprises, in addition to the lectures, practical exercises and travelling studies.

The students of the first year attend the seven courses of the working and machinery of mines, metallurgy, mineralogy, assaying, geology, palæontology, and surveying.

The students of the second year attend the second part of the four courses of the working of mines, machinery, metallurgy, assaying, and geology.

The students of the third year attend the five courses of railway construction, mining legislation, administrative law and industrial economy, agriculture, technical geology, and military fortification. The course comprises German and English, and the students are compelled to attend the course of one of these foreign languages.

The practical exercises are thus divided: During the term of study the students of the first and second year work alternately in the laboratory and the drawing class. They also study the collections of the school of mines and visit the manufactories and workshops in the neighborhood of Paris.

After the May examinations students of the first year are exercised in chemical analysis till July 15 and in surveying till August 15. The vacation commences at the latter date, but the students are expected to visit, for three weeks in September and October, one of the principal mining and smelting districts in France or Belgium.

During the first two weeks in June the students of the second year attend a course of geology under the direction of their professors, and in the summer they visit various mining and manufacturing districts. On their return they communicate the results of their observations in reports illustrated by drawings and sketches.

Each student of the third year is expected to prepare a plan of working a mine and a system of metallurgy according to the bases fixed by the council of the school, and the engineer students terminate their third year by a second journey for instruction of about a hundred days. On their return they are obliged, as before, to prepare reports on the

various establishments to which their attention has been drawn. The second journey is optional for the private students.

Examinations take place at the close of the school year upon all the subjects of study, including foreign languages (German and English). All examinations include a written composition in addition to the oral test. The students who have successfully passed the examinations required receive a diploma. Prizes are awarded to students who have distinguished themselves by their work at school or by their travelling journals. These facts are mentioned in the diplomas.

The authorities of the school cannot guarantee appointments for the private students, but, generally speaking, the influence and connections of the school are sufficient to procure positions more or less lucrative for the greater part of the students.



CIRCULARS OF INFORMATION

OF THE

BUREAU OF EDUCATION.

No. 5-1881.

**CAUSES OF DEAFNESS AMONG SCHOOL CHILDREN AND ITS INFLUENCES
ON EDUCATION, WITH REMARKS ON THE INSTRUCTION OF PUPILS
WITH IMPAIRED HEARING AND ON AURAL HYGIENE IN THE
SCHOOLS, BY SAMUEL SEXTON, M. D., AURAL SURGEON TO
THE NEW YORK EYE AND EAR INFIRMARY, MEMBER
OF THE AMERICAN OTOLOGICAL SOCIETY, &c.**

**WASHINGTON:
GOVERNMENT PRINTING OFFICE,
1881.**

273-274

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LETTER.

DEPARTMENT OF THE INTERIOR.

BUREAU OF EDUCATION,
Washington, September 24, 1881.

SIR: The causes of deafness among school children are numerous and important enough to justify a special investigation of the subject, and I have requested Dr. Samuel Sexton, a distinguished aural surgeon of New York City, to prepare a paper on the subject.

The author has collected in the following pages some of the more practical conclusions regarding the causes of deafness among school children, together with suggestions of a hygienic and prophylactic nature drawn from his own observations among a large number of pupils in dispensary, hospital, and private practice.

Before commencing the general discussion of the subject, the writer deems it expedient to give a brief description of the structure of the ear, together with its physical and physiological functions, including the *modus operandi* of hearing.

The woodcut illustrating the deeper and invisible portions of the ear, it is believed, will materially aid the reader in arriving at a useful knowledge of the subject.

The sympathetic relations between the teeth and the ears are also fully considered, the influence of diseased states of the former on the acoustic organs of youth seeming to demand particular attention.

I would, therefore, respectfully request its publication as a circular of information.

I have the honor to be, your obedient servant,

JOHN EATON,
Commissioner.

The Hon. the SECRETARY OF THE INTERIOR.

Publication approved.

S. J. KIRKWOOD,
Secretary.



DEAFNESS AMONG SCHOOL CHILDREN.

STRUCTURE OF THE EAR.

From a study of Fig. 1 it will be seen that quite a large passage seems to traverse the base of the skull from ear to ear; this passage, however, does not extend directly athwart the head in such a manner as to im-



FIGURE 1.—(After Ridinger).—Section through the head showing the auditory canal, drum, drum-head, and Eustachian tube of each side. 1, cartilage of the external auditory canal; 2, bony portion of external auditory canal; 3, 4, drum membrane of the right side; 5, drum cavity; 6, dilator muscle of the Eustachian tube; 7, 13, muscles which lift the soft palate; 8, mucous membrane of the pharyngeal orifice of the tube; 9, drum membrane of the left side; 10, hammer bone; 11, muscle which renders the drum membrane tense; 12, mucous membrane of the Eustachian tube; 14, 15, mucous membrane of the posterior surface of the pharynx.

¹The writer desires to acknowledge his indebtedness to Wm. Wood & Co., of New York, and Presley Blakiston, of Philadelphia, who have kindly loaned several of the cuts made use of in the following pages.

mediately connect the two ears together, for its connection is broken, as it were, in the pharynx, where it opens by two separate mouths.

A description of the passage of one side will be sufficient, inasmuch as both are alike. From where the passage enters the head at the auricle—ear, in common parlance—to its inner termination in the pharynx, it measures about two inches and a half.

The *external auditory canal* comprises the outer portion of this passage; its course is inwards, with slight deviations, for about an inch and a half, where it is closed by the drum-head. It is nearly round, seldom large enough to admit the end of the little finger, and has a lining

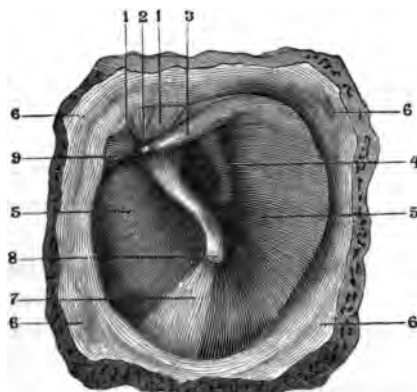


FIGURE 2.—Outer surface of the drum head, magnified about $3\frac{1}{2}$ times. 1, the flaccid part of the drum-head; 2, short process; 3, the back fold of the drum-head; 4, the anvil's long and descending limb shining through from behind the drum membrane; 5, 5, the true membrane; 6, 6, 6, 6, inner end of bony canal forming frame for drum-head; 7, the pyramid of light; 8, lower part of the hammer; 9, the front fold of the drum-head.

of skin which becomes very delicate at its inner end where it is reflected over the drum-head. The wax of the ear is secreted by numerous small glands situated near the centre of the auditory canal.

The *drum-head*,¹ or *membrana tympani* (Figures 2 and 3)², consists of a very thin skin, no thicker than tissue paper, which is stretched across the passage and closes in the drum. It is composed of three layers; the middle or fibrous layer being tough, gives it strength.

The *drum cavity*, or middle ear (tympanum), consists of the middle portion of the passage where it goes through the base of the skull. The drum is for the most part only a line or two in depth and about a half an inch in height and width; its inner wall, which consists of an irregular surface of bone, is perforated in

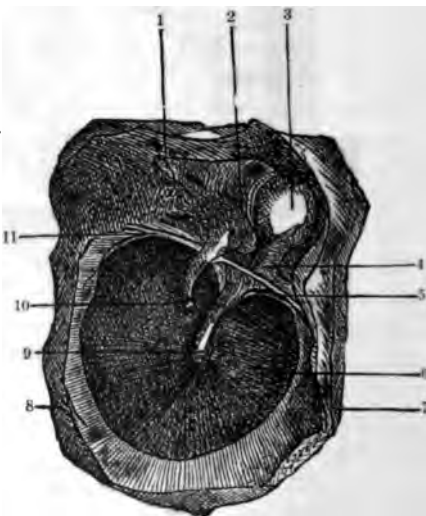


FIGURE 3.—Inner surface of the drum-head, magnified about $3\frac{1}{2}$ times. 1, short limb of the anvil, attached to back part of outer bony wall of drum cavity; 2, body of anvil bone; 3, head of hammer bone; 4, neck of hammer; 5, 11, chorda tympani nerve (this marks also the boundary line of the pockets and folds of the drum-head, the latter being shown in Fig. 2, at 1 and 5); 6, front part of drum-head; 7, 8, bony frame around drum-head; 9, the lower part of the handle of the hammer bone; 10, lower part of the long limb of anvil bone; to the point 10 the head of the stirrup bone is attached.

¹The drum-head is liable to be incorrectly spoken of as the drum itself. As in the musical instrument known as the drum, the ear drum has a membranous cover (drum skin) which covers a hollow cavity () containing air. The drum of the ear contains not only air but also the e-

²From Hearing, and How to -

H. Burnett, M. D.

two places, the openings leading into the labyrinth but closed by membrane; one of these openings receives the stirrup bone. The drum's dense bony case and its deep situation afford protection to the sound transmitting mechanism which it contains, and its unyielding walls allow of precision in the movements of the mechanism.

The drum-head veils the drum cavity outwardly, but owing to its translucency a glimpse is afforded of some of the structures within. The brain lies above the drum and is separated from it by a very thin plate of bone.

The Eustachian tube.—The inner portion of the passage which extends from the ear to the throat takes a somewhat downward course from the drum to its inner termination; this portion of the passage is a little more than an inch in length and is known as the Eustachian tube. The tube is very small where it leaves the drum, but it becomes gradually larger, and finally expands at its termination into quite a large trumpet-shaped mouth. The pharynx, which receives the inner extremity of the tube, is the superior termination of the air passages, and by means of this tube the air is conveyed upwards to the drum of the ear. The Eustachian tube is lined with mucous membrane. The mucus secreted in the drum cavity and along the tube passes into the throat. The drum cavity requires a constant supply of air from the throat in order to counteract the air pressure upon the drum membrane from without; this is accomplished by the act of breathing, every bellows-like movement of the lungs forcing little jets of air up through the Eustachian tube to the ear. Sound probably travels from the mouth to the ear through this tube, but we are unconscious of the fact unless the ear is diseased. The tube is liable to closure from colds, chronic nasal catarrh, and other causes, in consequence of which mucus is confined in the ear and the normal air supply is cut off. These disorders impair the hearing.

The sound transmitting mechanism.—

That portion of the acoustic organ which sound waves set in motion is lodged in the drum cavity, whose deeply seated bony case affords it protection, besides providing the unyielding attachment which is necessary for the performance of its functions. Besides the drum-head, or drum skin, as it is sometimes called, there are three ear bones concerned in this mechanism for the transmission of sound, namely: (1) The *hammer bone*, or malleus, which is joined to the top of the drum cavity; its handle comes down between

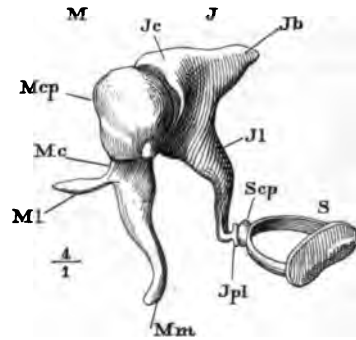


FIGURE 4.— Ear bones, or ossicles of the ear, in mutual connection, seen from the front and from the right side of the head, turned a little to the right round a vertical axis. M, hammer, or malleus; J, anvil, or incus; S, stirrup, or stapes; Mcp, head; Mc, neck; Ml, long process, or processus gracilis; Mm, handle, or manubrium, of the hammer; Jc, body; Jb, short process; Jl, long process; Jpl, orbicular process, or os orbiculare, or processus lenticularis, of the anvil; Sep, head, or capitulum, of the stirrup. The three ear bones are shown here enlarged four diameters. (Helmholtz.)

the layers of the drum-head and is moved to and fro with every vibration of the membrane. (2) The upper portion of the hammer is articulated to the *anvil bone*, or *incus*, to which all of its to and fro movements are communicated. (3) The anvil has a slender process projecting down into the drum cavity on the end of which is attached the *stirrup bone* or *stapes*. The foot plate of the stirrup bone fits like a piston into one of the holes that lead from the drum cavity to the inner ear or labyrinth. Thus we have a chain of small bonelets extending from the drum membrane to the labyrinth; any impulse imparted to the drum membrane is immediately transmitted to the stirrup bone, which is driven with a piston-like motion into the labyrinth. The *mastoid cells* are small cavities of irregular size, the whole assemblage occupying a space as large as an almond, in the mass of bone which may be felt projecting behind the auricle. There is a direct communication between them and the drum, and they are liable to visitations of an inflammatory nature when it is affected.

The inner ear or labyrinth.—The affections of the inner ear are influenced so little by ordinary hygienic measures that I shall not attempt its description here. Should the reader feel inclined to acquire a knowledge of this part of the ear he will find the subject ably treated in the very interesting little book on *Hearing, and How to Keep It*.¹

The modus operandi of hearing.—The passage that extends from the auricle to the throat is mainly an aërial conduit; the currents of air entering it at either extremity would intermingle were it not for the head of the drum which is stretched across the passage. The thin skin composing the drum's head vibrates freely to all sounds from without near enough to disturb the air in contact with it, thus affording the motive power that sets the sound transmitting mechanism in motion. The aërial vibrations of which sound is composed, entering the ear through the external auditory canal, excite responsive movements of the drum-head similarly to the impulses of wind that move the sails of a windmill; with this difference, however, the sails of the mill receive the air impulses obliquely upon a plane surface which causes them to revolve, while the drum-head, being immovably attached to the bony walls of the auditory canal at its entire circumference and receiving the impulses of sound on a slightly concave surface, is simply driven inward by each sound-wave, its peculiar construction causing it to instantly return to its former position after each inward movement. Now every time the drum-head performs a to and fro movement the ear bones partake of the motion, and the stirrup, which fits like a piston into one of the orifices between the middle and inner ear, thus imparts an impression of each vibration to the nerve of audition. Every sound thus seems to cause a particular kind of plunge on the part of the piston. The range of the sound transmitting mechanism's movements is very remarkable; thus it has been determined by scientific experiments that its to and fro

¹ *Hearing, and How to Keep It*, by Charles H. Burnett, M. D. Philadelphia, Prealecy Blakiston, 1880.

movements exceed forty thousand per second in response to the higher notes, while shocks of sound requiring no more than sixteen vibrations per second may still be appreciated. It will thus be seen that the transmitting mechanism is capable of such rapid movements that the most intricate musical sounds impart their rhythm to the sense of hearing without any inharmonious break.¹

It is but fair to state that some authorities hold to the belief that the sound transmitting mechanism is incapable of presenting compound tones to the perceptive faculties as a whole, but that the function of the nerve of audition is to take cognizance of the separate elements of tones.

Noises in the head, or tinnitus aurium.—The transmitting mechanism in health does not permit sound to be heard through any other channel than the auditory canal; confusion naturally results, therefore, when unusual sounds are permitted to excite the auditory nerve irrespective of the motor of normal hearing. Sounds, therefore, that reach the sense of hearing by exciting the piston-like action of the stirrup bone, or otherwise, without the aid of the drum-head, interfere with the sounds which continue to be perceived as usual; hence vibratory movements arising from the circulation of the blood in the head, or from other physiological performances which are thus abnormally heard, constitute noises in the head. (See pages 21, 39.)

*Autophony.*²—When the hearing motor, the drum-head, loses its tension, or when any of the ear bones become separated from each other, sound in the external auditory canal sometimes fails to cause effectual movements of the mechanism; the hearing is then variable, one moment the voice and noises in the head are all heard confusedly together, and the next moment better hearing is experienced. Autophony and tinnitus aurium are symptoms that confuse the individual very much, although he may enjoy quite good hearing when the temporary interference is absent. (See pages 20, 39.)

CAUSES OF DEAFNESS AMONG SCHOOL CHILDREN.

The sense of hearing is impaired by so many causes to which children are exposed, many of them almost unavoidable, that it is unusual to meet with a child that has not experienced some aural disease. If we accept the statement as approximately correct that of the entire population not more than five in every hundred possess unimpaired hearing, some idea at least can be formed of the prevalence of this defect in youth.

The numerous causes of deafness are found to be distributed among all the different regions of the ear, and it will, therefore, be most convenient to consider them, as nearly as may be, in connection with the

¹ See Dr. Charles H. Burnett's interesting researches on this subject, *Arch. Oph. and Otol.*, vol. II, No. 2, p. 45.

² Autoph'ony, from *αὐτός*, self, and *φωνή*, voice—a symptom in aural affections causing the patient when speaking or singing to fancy that his own voice comes from within the head, instead of leaving the mouth and going around to the ear as usual. The voice of the affected person can, however, be heard by others.

part affected; I shall first allude to local causes, and then to such as are remote or general.

I. LOCAL CAUSES.

Affections of the auricle.—The auricle is liable to become inflamed from blows or when frosted; it may then swell up greatly and close the entrance to the auditory canal, thus causing more or less deafness; a like result sometimes follows an attack of eczema, or salt rheum, an affection to which some children are subject. Deafness from these causes is not very frequent, however.

Affections of the external auditory canal.—The auditory canal being easily inspected under a good light, any object that obstructs it can be readily discovered. The foreign bodies that are found in this canal usually consist of small objects that children themselves or their companions have carelessly introduced in play. Although these obstructions are usually visible to the eye, their removal is found to be by no means an easy task, as will appear further on.

Wax may collect in the canal and cause deafness by excluding sound, or it may become loose in the passage and lodge against the drum membrane, when intolerable noises in the ear will be experienced. Foreign bodies, by exciting the secretion of wax or by preventing its escape in the natural way, may give rise to deafness. The canal is also liable to be closed by inflammation. (See page 36.)

Affections of the drum [the drum-head, although constituting the hearing motor, is yet anatomically inseparable from the drum and always participates in its affections].

Injuries to the drum from violence.—The drum is vulnerable to violence from without. Slight blows upon the ear or striking upon it in falling may cause its injury; thus, a slight *box on the ear* by the hand, suddenly compressing the air in the auditory canal, may rupture the membrane. Small implements such as are commonly carried about the person are sometimes violently thrust into the drum by sudden movements or unexpected blows while they are being used in the auditory canal. These injuries, which are, fortunately, of rare occurrence, involve to a greater or less extent the whole drum, the laceration and concussion being attended by other grave results. (See page 37.)

Affections of the inner ear, or labyrinth.—The consequences of impairment of the nerve of hearing are usually very grave. There are a few diseases characterized by severe brain symptoms which are singularly obnoxious to this region, mainly through the extension of inflammation to the auditory nerve and its surroundings; cerebro-spinal meningitis is an example of such affections, often leaving complete and incurable deafness. The affections of this region are but little influenced by hygienic measures.

II. AFFECTIONS OF THE EAR FROM NERVOUS SYMPATHY.

Affections of the ear from sympathy of the nerves occur more frequently than from any other cause; they are characterized by the

iousness of their approach, serious injury to the organ of hearing often taking place without being heralded by any symptom of warning. Generally, however, there are appreciable symptoms which attract the patient's attention, although they may not always at first seem to threaten the ear. Perhaps the most frequent precursor of these is taking cold.

Taking cold in the head.—In order to understand fully the significance of taking cold in the head through sympathy of the nerves, it would be well to explain the peculiar character of the parts involved.

The cavity of the nose, the region chiefly affected, enjoys an immense expanse of mucous surface, far greater in extent than the modest external aspect of the organ would indicate; thus, where the cavity of the nose expands into the throat behind, its passages are greatly convoluted and an extensive and tortuous cavern is thus constituted. This posterior and much expanded portion of the nasal cavity is covered by a highly vascular mucous membrane—the Schneiderian membrane—which is easily irritated, either by the entrance of particles of dust or by the reflex irritation to be described below. At the beginning of a cold in the head the blood vessels of this membrane become engorged, when the flow of mucus, which is naturally secreted in moderate quantities, is usually very much increased. The phenomena of a nasal catarrh are now soon manifest.

The *modus operandi* of taking cold in the head through sympathy of the nerves should be fully comprehended if we would wish to prevent aural disease by means of hygienic measures. In order to clear the way to an explanation it may be permitted to draw attention to some familiar phenomena which are due to the reflex action of the nerves or nervous sympathy; thus, certain individuals are known to be subject to flushing from slight causes, in explanation of which it may be said that a shock has been experienced from a mental impression which serves to paralyze the nerves controlling the blood supply about the head; the face is then instantly flushed, and in extreme cases dryness of the throat is experienced, and the head becomes hot from the sudden rush of blood into the arteries. The paralyzing effect is usually of temporary duration, the nerves regain their normal power, and the flushing and other symptoms are no longer experienced. In the more decided cases, however, pallor and dizziness succeed to the rush of blood. Another example suggests itself in the earache of dental irritation; pains in the ears are thus experienced in some instances from the cutting of a tooth or from dental decay, even without any irritation being felt in the mouth.

A cold in the head may arise from an exposure during which a current of cold air is allowed to fall upon the unprotected head and shoulders; the local shock from the draught of cold air is usually too mild to be observed by the person who has been thus exposed, but the nearest nerve centres which are concerned in the reflex action, and which are connected

with the spinal cord, have branches distributed to the exposed regions of the head and neck; they also maintain, by other small branches, communication with the mucous membrane in the nose and influence the blood supply in the latter region. In health the tone of the arteries is maintained by these nerves, which are called "sympathetic," but the shock occasioned by the draught of cold air serves to impair their functions and they become immediately paralyzed. This temporary paralysis of the nerves is promptly followed by an expansion of the blood vessels in the mucous membrane of the nose, when congestion ensues and the mucous secretion is increased. The result of an exposure to cold draughts is not invariably a cold in the head — a "stiff neck" may ensue.

During the existence of most head colds the ears are exceedingly liable to be involved; thus, the Eustachian tubes may be obstructed by the swelling of their mucous membranes, when the usual air supply of the drum cavity will be cut off; or, the catarrhal inflammation may extend from the throat up the Eustachian tubes and thence into the drum cavity. Both of these conditions usually coexist and give rise to much deafness.

But the ear may be affected without this catarrhal extension through the Eustachian tube. Thus, an independent inflammation may arise in the ears through the nervous sympathy existing between them, the throat, or nose.

In a certain number of instances the effect of taking cold may be manifested in the ear alone, the naso-pharynx escaping entirely. The aural complication is announced by a "stuffy" feeling in the ears; there are noises and autophony experienced and more or less deafness. (See pages 28, 29.)

Dental irritation.—By referring back to the *modus operandi* of taking cold, it will be readily understood how any dental irritation may give rise to aural disturbances, for the nervous relationship between the teeth and the ears is most intimate. In this manner many affections of the ear which were formerly attributed to other influences may now be accounted for.¹ The reflected neuralgias from dental caries are quite familiar to most readers, but it frequently happens that, through the nervous influence referred to, a morbid action is set up in the ears, and continues almost indefinitely without being attended with any marked pain in either the teeth or the ears, and therefore without attracting the patient's attention. But in a great many instances pain, either in the teeth or ears or in both, is a prominent symptom. The *modus operandi* of these sympathetic aural troubles is well illustrated in the accompanying diagram,² which shows the nervous connection between a carious tooth and the drum-head. The drum-head, it will be seen, is in part supplied by a small artery (indicated at S in the figure on page

¹ See the author's prize essay "On affections of the ear arising from diseases of the teeth," *Am. Jour. Med. Sciences*, Jan., 1880.

² The diagram is from Woakes; see his work on deafness, giddiness, and noises in the head. *Presley Blakiston*, Philadelphia, 1880.

15), which is under the influence of the vaso-motor (sympathetic) nerves of the carotid plexus, which at this part come largely from the otic ganglion (4). From the source of irritation in the carious tooth a nerve (7) also communicates with the same ganglion (4). A line of nerve communication is now established, through the otic ganglion, between the teeth and vascular supply of the drum-head. The effect of irritation in the teeth or gums will be to excite vessel dilatation in the arteries supplying the drum-head, when hyperæmia or even inflammation will result. This, of course, is only an illustration of an injury to a small portion of the organ; sometimes the drum cavity is thus affected, and when the sympathetic influence is characterized by chronicity, trophic changes may go slowly on, causing great injury to the ear without exciting any attention until hearing is seriously impaired.

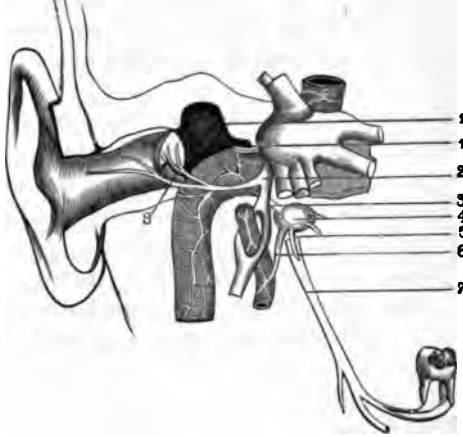


FIGURE 5.

With this brief explanation of the reflex phenomena concerned in aural diseases from dental irritation, I shall give some account of the dental disturbances that more particularly affect children.

The *first set of teeth*, which are all cut before the third year, are liable in some children to erupt with difficulty; it is a well known fact that with the cutting of nearly every one of these teeth the ears may be painful or a discharge may occur.

The *permanent teeth* begin to erupt at about the sixth year, and from this time on to the twelfth year, when the process is about completed, the strength of the child is severely tested; during this period of time nature makes an effort to gradually shed the temporary teeth and replace them by the permanent set. When the temporary teeth are shed in the natural way the process occasions but little irritation; but the crowns of these teeth are extremely liable to decay before being shed, when, the nerve being exposed, pains and local irritation are experienced.

The wisdom teeth.—These usually erupt about the eighteenth year. In many instances, however, their appearance is delayed, and they come in with difficulty, causing great aural irritation.

Among the consequences of dental irritation on the ears may be mentioned the increase of wax secreted, the occurrence of boils in the auditory canal, and injurious influences on the drum. The importance of this subject will demand a more particular account of dental disturbances further on.

THE EFFECTS OF GETTING WATER IN THE EARS.

When cold water gains admission to the ears the effect is usually unpleasant, often injurious. Inflammation of the auditory canal, at its delicate inner extremity especially, is a frequent result of getting sea water into this passage. But the drum-head, being yet more delicate, is more liable to become inflamed from this cause. The inflammation seldom is confined to the drum-head, but very soon involves the entire drum cavity.

The force of the waves in *surf bathing* may send the water into the auditory canal with sufficient violence to rupture the drum-head; or, if the wave strikes the bather on the face, water may be thus driven through the mouth and nose into the Eustachian tubes, by which route the drum cavity may be reached. (See Fig. 1, page 7.)

Diving and swimming under water, especially when long continued, are even more dangerous than bathing in the surf; the cold and irritating salt water, when thus long retained in the auditory canal, is very liable to cause inflammation; and should strangling occur, water is then freely admitted into the mouth and nose, the gasping and sneezing efforts to get rid of which are very often sufficiently forcible to send it into the drum. The injuriousness of sea water is owing to its comparatively low temperature and the large quantity of salt that it holds in solution. Prolonged bathing, however, in the waters of brook or pond, is not advisable, neither should the body be exposed to currents of air after coming out of the water. Besides being intensely painful in most instances, these injuries to the ear always cause temporary impairment of hearing; and irreparable deafness, together with chronic discharges, is liable to remain as a permanent legacy. (See page 34.)

The nasal douche.—The use of this apparatus, now unfortunately well established in domestic practice, is exceedingly liable to injure the ears by the transmission of the fluid used to the drum cavity; its employment, therefore, is unadvisable.

Sniffing water or remedies in solution up the nose is not free from the same danger that attends the use of the nasal douche; it should never be practised, therefore, without the advice of some one competent to prescribe the proper mode of procedure.

OTHER CAUSES OF DEAFNESS.

Children's diseases.—Many of the diseases of childhood are well known to leave persistent sequelæ in their wake, not the least offensive of which are aural discharges. Scarlet fever takes the first place in the ranks of these scourges; but measles, diphtheria, cerebro-spinal meningitis, whooping cough, and sometimes mumps are likewise inimical to the hearing sense, their liability to affect the hearing being somewhat in the order of the above enumeration.

Cutting the hair.—Closely cropping the hair of the head, especially its removal from the parts immediately back of the ears, has been observed

to be sometimes followed by inflammation of the organ of hearing. Hair cutting should not, therefore, be thoughtlessly done.

INCAPACITATING DEAFNESS.

Having now given the principal causes of deafness I shall endeavor to define the different degrees of aural disability which incapacitate the pupil, to a greater or less extent, from receiving instruction in the ordinary manner, in order that it may be ascertained what special means of instruction might be necessary. Before proceeding further, however, it would be well to define what constitutes good hearing, in order that we may have some standard from which a departure may be taken.

Normal hearing may be said, then, to consist in the mental perception of sound that has been transmitted through the unimpaired medium of both ears. Without binaural hearing the acquisition of knowledge by the ordinary methods of instruction becomes difficult proportionately to the degree of aural impairment. Hearing with both ears thus enables the pupil to quickly determine the direction from which sound proceeds, and it also enables him to promptly recognize the finer shading in the pronunciation of words. When, therefore, a pupil is observed to be backward in his studies, the teacher should, before attributing his want of success to mental defects, inquire if he hears well. It would be by no means a wise procedure to classify every departure from the normal standard among those who require particular care on account of their defectiveness, for a pupil may progress very fairly in his studies when the hearing of only one ear remains or when he has very considerable defects in both ears; yet such pupils will be very much aided by the recognition of their disabilities.

Incapacitating deafness.—All degrees of deafness may be said to impair the learning capacity of a pupil, but in establishing a standard of impairment which shall consign a pupil to exclusion from his better hearing fellows for instruction, I would select for special methods those who are unable to understand what is said to them in the ordinary tone of voice when five feet away from the speaker. Such a rule, however, must necessarily be applied with discrimination; must be, in other words, a flexible standard, for some defective, but well advanced, pupils, by reason of their natural quickness, will, without being a hindrance, do much better when subjected to the emulative influences of good hearing children. The disposition in the school room of those who have been designated as likely to make better progress under ordinary methods will be considered later on, but for the delicate task of selecting the more defective children from these, I shall now venture to lay down some rules which I trust will serve to aid the teacher until better ones shall have been devised.

METHOD OF TESTING THE HEARING POWER OF PUPILS.

It would be well were it a requirement that the pupils of the public schools should be examined at the beginning of each session with a

view to ascertain what number were too deaf to receive instruction in the ordinary manner and what number, having slight defects, would get on better if seated properly in the school room.

In conducting examinations it will be found that the voice of the person with which the children are familiar in learning is the best test, and, indeed, it is the only sound that need be used; sounds like the ticking of a watch, for example, need not be employed, as the ability to hear them is not significant as regards the pupil's hearing power for sounds used in teaching.¹

The sentences selected for tests should be intelligible to the understanding of the pupil, and some of the words ought to contain the hissing sounds, others the guttural, as "m," "n," "g," as these are heard with the greatest difficulty when hearing is impaired. Unless the sentences made use of are frequently changed, the pupils may become familiar with some of them and thus comprehend their import without hearing them distinctly.

During the examination the pupil should be placed about twelve feet from the examiner and should close his eyes; an assistant may then stop one of the pupil's ears by the pressure of his finger while the other is being tested. The examiner can now ascertain the hearing power by raising or lowering his voice as required.

In every instance where the sense of hearing is found to be defective, some record of the fact would be found serviceable for future use. It may be well to remark in this connection that the acoustic qualities of the room in which an examination is held should be taken into account—whether it be a large or a small room, whether containing many persons, draperies, &c., or comparatively empty, and, finally, whether any open doors or windows admit sounds from without. The age and the mental development of the pupil are also factors of importance, an uncultivated mind being slow in comprehension.

Examinations of the pupils in the public and parochial schools.—The writer's own observations in private and hospital practice having led him to believe that a large number of children with impaired hearing were in constant attendance at school without due attention being given to the disadvantages under which they were placed, he concluded to institute some examinations of the pupils in the public and parochial schools of New York with the view of ascertaining the percentage of deafness and the state of aural hygiene among them.²

¹ The difficulties in the way of establishing a uniform standard for the voice test are well nigh insurmountable, inasmuch as no two persons possess voices of equal quality: it is thought best, therefore, for the teacher of each class to examine his own pupils, employing for this purpose the tone of voice usual in teaching.

² The author gladly acknowledges the courtesy and kind assistance in his visitations of the superintendents and teachers in the Roman Catholic parochial and in the colored public schools; his efforts in other departments of the public schools were not so successful, and the absence of encouragement in this direction by those who should be interested will serve to account for the small number examined.

Being aware of the fact that deafness existed in numerous cases where an examination only would convince the patient of the fact, the writer in conducting the school examinations first interrogated both the teachers and the pupils as to their own knowledge of any deafness; their replies and the subsequent lack of verification are significant. It should be stated that these examinations were made under circumstances unfavorable to the attainment of such results as would be required for an exact classification of pupils, for at the visitations the children were found at their recitations or when they were on the eve of dismissal. But the results obtained are thought not to be without value. For his general conclusions on this subject, however, the writer has relied on the thorough examinations made of individual cases which have been brought to him for treatment; in these the tests of the hearing power were made deliberately, and the statements of parents regarding the cases were also obtained.

Remarks on the examinations of pupils in the public and parochial schools.—Five hundred and seventy pupils were examined; they were distributed as follows:

In the colored public schools	261
In the Roman Catholic parochial schools	226
In the white public schools	83

570

An analytical view of the details of these examinations as exhibited in the tables¹ shows that of the five hundred and seventy pupils examined the teachers were previously aware of the existence of one case of deafness only, while the pupils themselves were but little better informed, only nineteen of the entire number being aware of their aural defects. In my own examinations, which were by no means searching and in which the teachers usually gave the test questions with the intent of compelling the children to hear them, I detected seventy-six cases, or about 13 per cent., of greatly diminished hearing in one or both ears.

Four hundred and eighty-seven of the entire number of the pupils were asked if they had ever experienced *earaches*; one hundred and seventy-three of them, or about 37 per cent., recollected having had this symptom. Among the older children but few had any recollection of ever having had pains in the ears, probably because past pains are soon forgotten. In all of these instances where earaches had been experienced it may be inferred that the aural affection that gave rise to them had also more or less permanently damaged the sense of hearing; but such defects would not be apparent unless more delicate tests were made.

ANOMALIES OF HEARING.

There are some peculiarities in hearing experienced when the ears have never been diseased which cannot be strictly included in any of

¹The details of these examinations may be consulted in the tables appended at the end of the paper.

the subjects previously considered; among these is the ability of some individuals to hear most acutely certain sounds while they hear others very badly: thus, a person may hear the low rumbling of the thunder attending sheet lightning, a sound quite inaudible to many, while the chirping of a cricket, which is painfully acute to some, he will not hear at all. I have no doubt that experiences quite the contrary of this may exist, but as yet I have been unable to confirm the opinion by observation; in certain diseased conditions of the ear, however, examples are not wanting where persons hear the ticking of a watch, which is a high sound, quite well, but who hear conversation in a low tone of voice with difficulty. On the other hand, the relatively good hearing for low sounds of the voice is sometimes a condition in aural affections.¹

*Autophony.*²—Autophony occurs during the progress of most aural diseases. It consists in hearing one's own voice in the head; it sometimes amounts to simply this, but there is often heard a reverberation of the voice, or an "echo" as it is often styled, and it is then described by the sufferer as double hearing. When the patient thus hears his own voice he fancies that others cannot hear him talk, for the voice seems to go up into the affected ear instead of going out of the mouth. The effort of talking becomes very tiresome to him, for no exertion, however great, is of any avail; the louder he tries to speak the more disagreeable his voice sounds in his own ear.

The autophonous voice sounds very strange to the patient; it is unlike his own voice; it seems as though another person, at a distance, were speaking. When the voice is thus heard false by the pupil, he is unable to regulate or control it, for at one moment it may sound quite naturally, as though in fact it came out of his mouth and went around to the ear as usual, while the next moment it seems to fail of utterance altogether and reaches the ear from within the head.

In false hearing the voice usually appears to be hoarse, the patient often calling one's attention to this with the remark that he must have caught cold. Sometimes the voice, however, seems to the sufferer to be very high in pitch. When hearing it higher than it should be, the patient makes an unsuccessful effort to correct the fault by lowering his voice, often to a whisper; when it seems "hoarse" and low the attempt to correct the apparent defect results in an unpleasantly loud voice.³ During the continuance of this trouble confusing noises in the head are also experienced; they are but little less annoying than false hearing. This symptom is often of brief duration, but in a large number of cases it becomes permanent.⁴

¹The number of persons who (without aural disease) possess these peculiarities is comparatively few, as far as is known, but as attention is directed to these conditions it is probable that the number will be found to be considerable.

²See note at the foot of page 11.

³This will explain why some deaf people shout their words to those whom they know to have good hearing.

⁴Allusion has not been made to the effect of false hearing on those who use the singing voice; it may be said that while the hearing is thus affected the voice cannot be

The autophonous voice sounds so alarmingly to children that they frequently avoid speaking altogether; when silence is thus maintained the child is called "dumb." It has been my experience to have many patients of this kind brought to the infirmary by their parents, and it has not infrequently come out at the examination that such patients have been severely punished for supposed stupidity. This condition of the hearing organ is by no means of infrequent occurrence, and the teacher should consider its possible influence on a child's behavior before condemning it as perverse or wilfully disobedient.

Noises in the head are almost inseparable from all kinds of aural affections; they manifest themselves in an infinite variety of phases, almost every patient describing his own experience differently; they are thus said to resemble ringing of bells, the roar of the sea or of the wind among the trees, the buzzing of insects, the escape of steam, &c. To some these noises seem so loud that rest cannot be obtained. They must be very confusing to children who experience them in some degree with almost every cold in the head, and where long neglected running from the ear exists the distress from tinnitus must often be very great indeed.

The above by no means presents in their strongest light the troubles that children experience when the sense of hearing is perverted; it may, however, serve to show that they are subject to some very distressing symptoms without always being able to make their sufferings known, such facts, in my own experience, only being elicited from the uninformed and apprehensive patient by the most painstaking examination.

IMPERFECTIONS IN SPEECH.

Attention will now be given to another kind of difficulty—in its way no less vexatious than the disabling affections already mentioned—an ailment existing very often altogether independently of aural disease yet having its origin in the same etiological causes: I allude to anomalies of vocalization. Although these anomalies usually coexist with defects in hearing, their differentiation is important in the management of backward children, for the subject may otherwise be relegated to the class of feeble-minded youth who are considered as but little removed from the demented.

The acquisition of language may be said to consist in correctly hearing the words and sentences of which language is composed and in the persistent repetition of the same until memorized. Children, therefore, require good ears and long practice in the imitation of the voice of their instructors before they become masters of spoken language. It should be kept in mind here that a slight degree of deafness may be sufficient to hinder the child in the first steps that he takes in learning to talk—and these first steps are, probably, much more immature than they are

trained to singing, nor can the pupil so affected be taught to perform on musical instruments. For an account of false hearing, in this connection, see the author's paper "On false hearing and autophony in singers, speakers, and performers on certain musical instruments," in the *New York Medical Record*, January 22, 1881.

usually thought to be, as the infant is at first, probably, unconscious of most sounds, the perceptive faculties of the ear not being taxed beyond the requirements of the mental faculties.

It is very difficult to discover defectiveness in hearing before the child is one year old; owing to this fact the child may be "stone deaf" for a considerable time before the discovery is made. Even a slight defect in hearing is a detriment to the infant, for his education begins as soon as the slightest attention to sound is given.

The child, in this process of acquiring knowledge, repeats words as they are heard; if it hears them incorrectly a faulty enunciation is acquired; thus every one has observed in his own experience how unintelligible the language of partially deaf children is, how slow they are in learning to talk. The flexibility of the voice is naturally very great, and uninterrupted practice increases its fluency from day to day; the young learner, relying on his imitative faculties rather than his own judgment, readily adopts the accent of his teachers and associates, and in this manner he acquires the dialect of the locality in which he lives.

The correct enunciation of words depends very much on a healthy condition of the upper vocal organs—the mouth, nose, and pharynx—and on the unobstructed passage of air through them during vocalization. Repeated attacks of head colds, resulting in nasal catarrh, enlargement of the tonsils, &c., together with irregularities of the teeth, are the principal etiological factors in the development of impediments that interfere with the physiological functions of these parts. A nasal tone of voice is an almost invariable characteristic of these impediments, but very often the obstructions in the throat or nose are so great as to give a "choked" expression to the voice. Enunciation then is difficult; for example, letters which require for their pronunciation the use of some of these parts, as "m" and "n," cannot be correctly enunciated. When defects in speech arise from disease in both the ear and throat the pupil is placed at a very great disadvantage indeed as regards the learning of correct enunciation; he fails to hear certain words and on the other hand there are certain others which he is unable to enunciate. Thus, the hissing sound of the voice may not be heard at all; the pupil is therefore liable to leave it out of his speech entirely; for example, he will pronounce sir as "thir" and sausage as "thausig," and so on. Should the deafness be very great, the person will omit such sounds entirely, not that he is physically unable to make them, but he does not know how they sound. Now, should the pupil possess obstructions in the nose and throat as well as defective hearing, instruction under existing methods will be difficult—in some instances well nigh impossible.

The voice, it should be stated in this connection, becomes very much modified after the individual ceases to hear well: it loses its flexibility and can no longer be modulated.

MANAGEMENT OF PUPILS WITH IMPAIRED HEARING.

The *separate education* of pupils whose impaired sense of hearing debars them from the benefits of education by ordinary methods, from the investigation that has been made concerning their capacity to acquire knowledge, would seem to be a necessity. The claims of the deaf-mute have been long since recognized, and his wants in great measure provided for; it remains now to recommend measures for a neglected class of equal numbers whose requirements are no less urgent.

I shall not, in this connection, essay to suggest any matured scheme for the special instruction of those who are not entirely beyond the reach of vocal methods, but who are yet too deaf to be taught with good hearing pupils without interfering with their instruction: the attempt would carry me beyond the scope of this paper. Such a scheme will require for its successful development the time and labor of experienced teachers, and even under the most favorable circumstances the progress of any plan will necessarily be slow. I shall, however, venture to offer some suggestions in the matter, hoping that, inasmuch as my views have been derived from a very considerable experience in the observation of aural defects, the advice given from an otologist's standpoint may not be without value.

We will suppose that steps have been already taken to ascertain the hearing power of the pupils; the next step will be the classification of such as have been found to be defective.

Disposition of deaf pupils.—Any pupil found to hear the ordinary voice of the teacher with difficulty should occupy a seat near him.

When hearing is good in one ear only, the child will hear to the best advantage if seated rather to one side, so that the good ear will be toward the teacher.

Pupils whose defective sense of hearing prevents them from receiving scarcely any instruction by the usual vocal method should be, if possible, separated from the good hearing and taught by special methods. As intimated before, children who cannot understand the teacher at the distance of five feet, when addressed in the ordinary tone of voice, are not only an obstruction to the work of teaching other pupils, but they can learn but little themselves. These pupils, in many instances, may perhaps remain very deaf only a short time; they may be entirely cured by treatment; special instruction would then, in these cases, be regarded as tentative only, for when improvement takes place their advancement will be more rapid among pupils whose hearing is good.

When it is found that children are too deaf to make any progress or from an increase of deafness it is unmistakably manifest that they cannot be instructed by vocal methods, they may be relegated to a department where deaf-mutes alone are taught.

Deaf-mutes.—When the acoustic organs are too greatly impaired for vocal instruction to be of any benefit, pupils are generally designated as *deaf-mutes*. This classification, however, is rather an arbitrary one, for

all persons who are unable to understand speech by means of the sense of hearing are by no means mutes, nor can all of them be instructed equally well. It would be well, therefore, for the purposes of instruction, to divide this class of persons into two groups: those who hear their own voice and those who do not.

Of the first named group it may be said that a certain number are congenitally defective, while others become deaf at a later period in childhood. Notwithstanding the profound deafness of these children to outward sounds, some of them are capable of learning to speak with greater or less distinctness, the perceptive functions of hearing having been preserved to a goodly extent while the transmitting mechanism has sustained irreparable impairment. To the greater number of these pupils the autophonous voice which remains to them is very far from imparting a natural impression of the voice to the mind; their vocalization is notable for its "muted" cadence, the words seeming to be uttered in imitation of the sounds transmitted to the perverted sense of hearing from their own vocal organs. A much better vocal power remains when children have previously learned to talk well than when speech has not been so acquired. Under no circumstances, however, will the voice remain unchanged; it is no longer flexible and pleasantly modulated, but soon becomes mechanical and harsh.

The second group of deaf-mutes includes those in whom there is an entire absence of the perceptive function of hearing, either congenitally or from the more severe diseases which deprive the auditory nerve of its functions. In some of these the transmitting mechanism of the middle ear may not be greatly impaired, but the nerve no longer perceives sensations of sound from any source, either without or within the head.

Of these, the congenitally deaf can never, I am inclined to believe, practicably be taught to speak very intelligibly, for they cannot hear any sound upon which the mind may form an idea as to the character of speech. They, however, who have once fairly acquired speech may retain the use of it in a very satisfactory degree after becoming deaf, if well trained. Very young children who have only just learned to talk soon lose the faculty, and it is very difficult for them to ever learn to speak well again.

In a certain number of cases of deaf-mutism both the middle and inner ear are undoubtedly affected by disease, but in the greater number of cases the disability seems to be mainly seated in one of these regions only. Where the functions of the nerve of audition have not been exercised, in consequence of early impairment of the mechanism on which transmission of sound to the inner ear depends, its deterioration will probably ensue. Owing to the neglect of a great many of these children at home, the difficulties in the way of their education are much increased. Although the number of pupils who will be found to hear their own voice fairly well is comparatively small, yet it would be well to differentiate between these and the pupils who do not, for the former possess capa-

bilities for learning which the latter do not enjoy; the one may acquire articulate speech, while the other may be advantageously taught the sign language only.

These children, in the larger cities, could in many instances be more economically taught if kept under home influences and educated in a special department of the public schools.

In the instruction of the very deaf and of those who hear no external sounds but yet hear their own voices, some assistance may be obtained by the employment of conversation tubes among the former and of the mouth trumpet and otacoustic fan among the latter. The mouth trumpet, which consists of a tube for speaking into the mouth, gives the pupil in some instances a more correct idea of the natural tone of the voice than any other aid to hearing. Dental sound transmission by means of a fan can also be made serviceable in certain cases, the speaker being obliged, however, in availing himself of its use, to place the pupil within one or two feet of his mouth while thus teaching. The use of these appliances, moreover, will aid the examiner in determining the pupil's hearing power for his (the pupil's) own voice.

It is hoped by the writer that what has been said above concerning the education of deaf-mutes may not be construed to reflect upon the usefulness of institutions that are more particularly asylums for the physical care of this class, and which not only provide temporarily a charitable home for them, but also give them an education at the same time.

DEAFNESS AMONG TEACHERS.

It is not unfair to state that teachers do not enjoy greater immunities from impairments of the sense of hearing than others in the same social position; and, although a certain degree of deafness should not exclude a person otherwise competent from the pedagogical profession, yet it must be confessed that good hearing is very essential to one who has so many experiences to try his temper and who should be able to avoid doing an injustice to any pupil from a failure to hear everything that is said in his presence. Should an instructor himself be defective in his hearing sense and yet be unaware of the fact, it would be easy for him to unjustly censure children for incompetency in the course of instruction or in examinations for promotion simply because their responses were not heard. The writer has known instances where teachers when suffering from temporary deafness were almost sure to hear certain words incorrectly, and were therefore obliged to ask pupils to repeat their replies over and over again before they could assure themselves of their correctness. Such experiences are a warning to those having irremediable defects.

Persons desirous of acquiring a pedagogical education at the public expense should be subjected to an aural examination before they are accepted; and in the appointment of teachers in the public schools the ability to hear well should be a requisite. If the examinations were al-

ways oral, the applicants being required to *hear* the questions, they would be more satisfactory than if otherwise conducted. I have in mind an illustrative case which is of interest in this connection: A young lady nineteen years old had been, it was supposed, thoroughly prepared for teaching in an excellent school for young ladies; but, owing principally to dental irritation, she gradually became so deaf that when, after graduation, she appeared before a Brooklyn board of examiners for appointment as a teacher in the public schools, she utterly failed. The questions were given out orally, and she was unable to answer them because of her inability to hear them correctly. The board of examiners, however, was not aware of her aural defect. Had the same attention been given in the case of this young lady to the condition of the ears and teeth that was devoted to her mental improvement, her success would probably have been assured. When I saw her shortly after her failure it was found that her mouth was greatly deformed by irregular teeth, and that these, together with a great amount of dental caries, had been the principal cause of the deafness; the teeth had never received any attention, and from the irritation attributable to them and her inability to properly masticate her food the general health had also suffered.

AURAL HYGIENE IN THE SCHOOLS.

That we have a faulty system of school hygiene no one familiar with the facts will deny; and the remark is equally true both as regards the construction of our public school-houses and the personal care of school children.

When we are appealed to as humanitarians to provide hospital accommodations for the pauper class, no means are spared in the planning and erection of healthful buildings for their use, but when school-houses are to be constructed — where both body and mind should be aided in development, prepared, I may say, to enter the struggle for “the survival of the fittest” — their erection is, I fear, too often intrusted to the political contractor, whose knowledge in building is chiefly confined to “making it pay.”

Let us hope, however, that time will correct these abuses, and in the mean time we must discuss what is best to be done with such buildings as have been given to us. These are not, perhaps, so faulty but that better hygienic regulations could contribute very much to their comfort and healthfulness.

It will, however, be useless to devise plans for the heating and ventilation of school-houses so long as negligence and apathy prevail on the part of those who have such matters in charge; these seem to regard the heating of apartments occupied by school children as contributing sufficiently to their personal well-being. It is, no doubt, honestly believed by many to be more important to maintain a certain *established* temperature in the school room than to protect the individual from *injurious exposures* to draughts or to an undue elevation of temperature, as

the case may be. There has been so much said about the ills that arise from breathing foul gas and dust, which are believed to poison the blood or irritate the air passages, and so little said about the dangers of draughts of air, that the latter are liable to be overlooked in the anxiety to avoid the evils attendant on the former. Too much care cannot be taken, obviously, to avoid the inhalation of deleterious matters, but certainly equal care should be exercised to guard against the injurious effects of air draughts to which pupils are so much exposed. It would be of much service in properly ventilating school rooms were open fireplaces in more general use, and it is to be hoped that architects and sanitary engineers will insist on the introduction of these in the future. It may be well to say a word here as to the proper temperature of school rooms and the clothing of the pupils.

Temperature of the school room.—The temperature of the school room should be kept at about 68° or 70° Fahrenheit, as indicated by the thermometer; it should not be regulated by the sensitiveness of any individual, such a test being by no means reliable for this purpose. The necessity for the renewal of fresh air for ventilating purposes must be determined by the season of the year, the size of the room, and the number of pupils present; when the doors and windows are thrown open for this purpose, the children should be required to leave their seats and walk about in order to avoid any ill effects from draughts. Children should be protected, if possible, from exposure to currents of air after exercising; nor should they stand or sit while “cooling off,” but move about quietly and resume any wraps that have been laid aside. The air of halls or lecture rooms, especially when illuminated or crowded, soon becomes much vitiated, and, by depriving the system of its natural powers of resistance, favors the invasion of colds.

Insufficient clothing.—A large number of children present themselves at our public schools insufficiently clad, or come during inclement weather chilled from exposure; they are often obliged to sit in wet clothing, especially wet stockings and shoes. The parents of the poorer pupils will require their attendance at school under the most unfavorable conditions, that they may be for a time relieved of their care. To neglect the physical condition of this class would seem no less a culpable oversight than a disregard of intellectual training.

The excessively clad.—As regards another and entirely opposite class to the above, a greatly increased sensibility ensues from the use of too much clothing and the neglect of outdoor exercise; thus, children are often made exceedingly susceptible to colds by the use of superabundant wraps made of furs, which, in our climate, are at best suitable only for emergencies arising in exceptionably cold weather. It is a well known fact that among the more wealthy the constant use of seal skin sacks and all kinds of fur collars, boas, &c., is the cause of unmanageable head colds; such colds, when unrelieved, are the means of establishing most persistent nasal catarrhs.

From what has been said above, it will be seen that our system of school hygienics is by no means perfect, and we may infer that the home sanitation of children is also deplorably faulty; when these shall have been corrected, much physical suffering will be prevented and many of the complaints under consideration avoided.

We have now to consider the consequences of these neglects on the acoustic organs, among the most important of which is taking cold in the head; to this is to be attributed a large proportion of children's aural affections, and I shall, therefore, discuss the etiological factors concerned somewhat at length.

TAKING COLD IN THE HEAD.

Taking cold is an experience usually derived from unguarded exposures to draughts of cold air. When the weather moderates, colds are observed to be especially prevalent; the care ordinarily exercised for the body's protection is then neglected: warm wraps are laid aside, wet clothing is permitted to remain upon the person; and then, too, it is that rooms are liable to become overheated, and the dangerous draughts which are created by negligently leaving doors and windows open are not avoided with sufficient care. It is a well known fact that colds are not most prevalent in the coldest weather, but that, on the contrary, the persistently low temperature of our northerly climate is most invigorating; indeed, while the extreme cold holds on, catarrhs are conspicuous by their absence. It is worthy of mention, in confirmation of the above, that the inhabitants of our South Atlantic and Gulf States by no means enjoy an entire immunity from colds and their consequences. Although their winters are exceedingly mild, the thermal vicissitudes are even more trying than at the North, and catarrhal troubles are therefore not unusual.

The *modus operandi* of taking cold having been already explained (see pages 13-14), it now remains to account for the prevalence of catarrhal affections among school children, in order that hygienic measures may be inaugurated for their prevention. It has been asserted above that nervous sympathetic action, whereby widely separated parts are brought into intimate relationship with each other, is to be dreaded because of its insidiousness; thus, following an exposure whereby a cold in the head is established, the irritation in the nasal region is not, as may be supposed, owing to the cold air inhaled, but to the reflex action of the nerves. A supposititious but exceedingly familiar example will serve to illustrate this proposition: A current of cold air—it may only be comparatively cold, from the cooling effect it has by hastening evaporation of the moisture upon the skin—is wafted in through an open window and allowed to fan the head and shoulders of a child who has become heated by the exercise of play or in hurrying to school; the exposed parts, the head and shoulders in this instance, receive a shock the local effect of which is usually slight, but through the agency of the sympathetic

nerves a more decided impression is made upon the mucous membrane of the nose. This may be announced by an attack of sneezing, more or less violent. Wet feet and clothing are also prolific sources of colds, both in the head and elsewhere.

Slight colds in the head are even more serious in their consequences than the effects of severe attacks with long intervals of immunity. When fresh attacks are almost daily experienced, the patient is for the most part absolutely indifferent because profoundly ignorant of any danger. Frequent recurrences, moreover, seem to eventually establish a susceptibility to these invasions, and when, finally, a chronic nasal catarrh is established the parents are greatly surprised to learn that, although complaints may have been confined to the state of the hearing organs, a most intractable nasal affection has been established. Nasal catarrh is sometimes an affection of the very earliest period in life, some infants, in fact, having evidences of it at birth. The affection is nearly always to be recognized by the flow of mucus from the nose, which gives rise to constant snuffling, and sometimes excoriates the nostrils and the upper lip; in older children attempts are made to hawk the secretion up into the mouth, as it otherwise has a tendency to drop down into the throat, where its presence causes irritation.

The general health of these sufferers is, of course, always more or less affected, for no organ of the body can be considered entirely independent of the others. Owing to the immediate connection through the Eustachian tubes, which are lined with mucous membrane which is continuous with that of the nose and pharynx, and also by means of the intimate nervous relationship, no organ probably suffers more from the consequences of colds in the head than the ear. Although these sufferers may have aches and pains in every region of the head, the importance of which the writer would by no means wish to exclude from due attention, yet he believes that the aural aspect of the subject is of sufficient consequence to justify him in drawing the attention of teachers especially to it, and, although they may not entirely prevent the occurrence of the colds which thoughtless pupils subject themselves to by exposures, yet they can do much in this direction with the means at their command, if not unmindful of their share of the responsibilities devolving on all of us who assume to aid in the work of bringing forward the youth of our race. (See page 13.)

DENTAL IRRITATION AND THE CARE OF THE TEETH.¹

The irritation of decayed teeth or inflamed gums is not only a frequent cause of aural disease of an acute nature, but very often it happens that when the ear is in a moderate state of irritation from sympathy with the teeth a cold or other cause will be much more liable to set up acute aural inflammation. From the present writer's own experience for some years he believes that diseases of the ear arising from

¹The author is indebted to Dr. Frank Abbott, of New York, an authority in dental surgery, for valuable suggestions on this subject.

affections of the teeth are more frequent than has been urged by writers on the subject;¹ he feels, therefore, that the very considerable space which he shall devote to the matter will not be greater than its importance demands.

The teeth of some infants require very early the physician's and dentist's care, their eruption and development being so unhealthy that by much care only can trouble be obviated.

The *temporary teeth*, then, will first demand attention. The popular belief is that it is of no consequence when these teeth decay or are extracted, inasmuch as the permanent set will soon restore the loss. The evils resulting from the neglect that is based on this fallacy are very great. The temporary teeth, aside from their usefulness in the mastication of food, are the necessary pioneers of the second or permanent set; they should, therefore, be carefully preserved, not only from the injury likely to ensue from biting very hard substances, such as nuts and the like, but also from the deleterious influences of uncleanness. If the decay in a temporary tooth is not treated and then filled properly before the nerve pulp is destroyed, the roots are not absorbed as they should be and hence they are in the way of the coming permanent teeth and divert them from their proper course; in most instances there is also much irritation from the crowding that ensues (see 1, 1, Figure 7, page 32). Sometimes these temporary teeth, with their unabsorbed fangs, are crowded partly out by the permanent teeth, but remain in the gum by the sides of the new teeth; should their fangs be sharp, much irritation is caused by wounds of the cheeks or tongue, and their presence in the gum is a sufficient source of irritation to set up aural hyperæmia.

The regularity and healthfulness of the permanent teeth depend very much on the treatment of the first set; especially is the much too general practice of extracting the temporary teeth, because they are believed to be of little service, to be deprecated. Just here a word of caution is required concerning the appearance of the first teeth of the permanent set, namely, the six year molars.

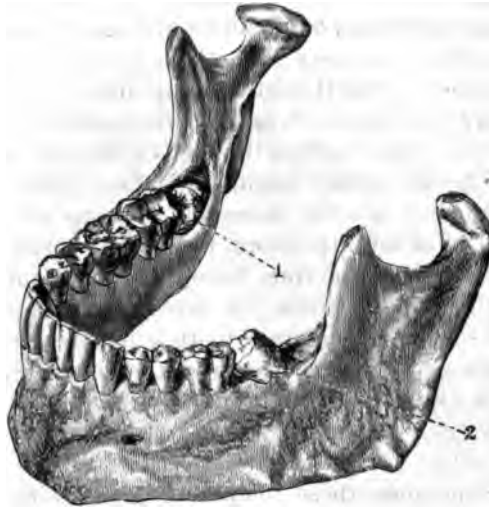
The *six-year or first molar teeth* are four in number. These teeth, on account of their imperfect state, are believed to be less able to withstand the influences that lead to caries than those of the permanent set which are cut later, and they are, therefore, liable to decay early. Even when parents find them decayed they are generally neglected, although sometimes exceedingly painful, for they are usually supposed to be temporary teeth, and hence not worth preservation. They should, if possible, be preserved. Another dental epoch sometimes has an importance to the aurist on account of the great amount of irritation that may exist without the cause being suspected. I allude to the eruption of the third molar or wisdom teeth.

The wisdom teeth.—These teeth should erupt at about the eighteenth

¹Dr. Charles H. Burnett was among the first to call attention to the *nervous connection between the teeth and the ears*. Treatise on the Ear, Philadelphia, 1877.

year, but they often come at a much later period and erupt with great difficulty. They are especially liable, in the lower jaw, to push against the adjacent tooth, and, being urged onward in the process of erupting, cause very great irritation. Some of the most intractable affectionⁿ of the ear become established in this manner before the cause has been discovered.

I have long been in the habit of examining the teeth of children brought to me with aural diseases, and it happens very often that unsuspected dental irritation is found to coexist, to which the aural irritation is in some measure attributable. Among the large number of cases of school children who attend the aural clinics at the infirmary it is rare to find one where dental irritation should not be considered as a causative factor.



The teeth of children should be frequently examined at home, and any suspicious spots should not be neglected. It is a noteworthy fact that during the period of active dentition the nervousness of children is marked and the susceptibility to reflex phenomena is increased.

Disease of the teeth in the schools.—My attention, as above stated, having been drawn to the frequency of dental caries in connection with antral affections, I was led to make a thorough examination of the teeth of a considerable number of pupils in actual attendance at a public school in order to obtain a knowledge of their exact condition.¹ The number of such pupils examined was eighty; they consisted of such children as happened to be present in a number of class rooms, the attendance being small, as is usual in midsummer. It was found that scarcely any of the children were free from dental irritation, and few of them had teeth in a normal condition. In thirty of the number the teeth were in such

FIGURE 6.—Lower jaw or interior maxilla, from a specimen in the author's cabinet. The figure shows the horizontal position of the lower wisdom teeth, the position which gives rise to their difficult eruption. 1. The right wisdom tooth, which is wedged in between the ramus, or upright portion of the jaw, and the second molar tooth; it has not, as yet, been able to leave its socket and cut through the gum. As the tooth is urged onward in the effort to erupt, it is forced against the sensitive root of the neighboring tooth, the pressure giving rise to much irritation. 2. The fully erupted left wisdom tooth; it is inclined toward the first molar; the second molar on this side having been lost, room was afforded this tooth to cut through the gum.

The disturbance caused by these teeth is sometimes very great; the parts are not only subject to great swelling, but the suffering is often of a severe character. When mastication is attempted, the gum over the tooth is liable to be bruised and thus increase the irritation. Sometimes the irritation goes on for years, until nature seems to exhaust her expulsive forces, without completing the process of eruption; pains may or may not be experienced, sometimes they seem to shoot from the tooth to the ear. Through nervous sympathy the ears are very often affected. The two upper wisdom teeth usually erupt a short interval after the two lower and are out with less difficulty.

¹ These children were nearly all of German parentage.

an unhealthy state, from irregularities and decay, that wax impressions were taken of them; these have since been mounted up in plaster for study. The deplorable neglect of the teeth among these children was a surprise to me, although, from previous observations, I had expected to find them very bad indeed. It was notable that teachers having charge of these pupils never suspected that the teeth ever gave rise to any serious trouble, but it was ascertained by questioning the children

themselves that in nearly every instance they had experienced pains in the teeth or ears, sometimes in both. The appearance of many of these children indicated that the general health had not escaped the consequences of imperfectly masticated food; that some of them also suffered from neuralgias about the face and head "goes without saying."

The casts of the upper and lower teeth, shown in the cut (Fig. 7), represent one of the cases seen; it is by no means an exceptionally unfavorable example.

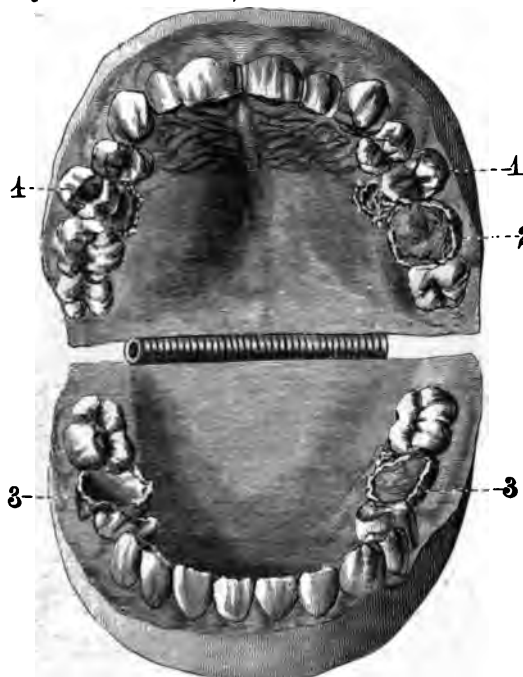


FIGURE 7.—Casts of the teeth of a school girl twelve years of age; from the author's cabinet; the casts are represented as being held together by a hinge. 1. 1. The second bicuspid tooth of the upper jaw, both of which have been crowded out of place as they erupted by the remains of the fangs of the temporary second molar teeth; these fangs, which have been too long retained in the gums, are seen in the cut just inside the second bicuspids. The retention of the fangs, together with the crowded and irregular condition of the permanent teeth which have just been cut, gave rise to much irritation. This anomalous condition of the teeth is by no means an unusual occurrence where the teeth are neglected. 2. The left upper six-year molar tooth, which is very carious. 3. 3. The two lower six-year molars, both of which have been destroyed by caries. The little girl from whose teeth these casts were taken suffered from deafness and frequent attacks of pain in both ears, and, as she herself expressed it, "the decayed teeth had ached very much all around."

The cast shown in Figure 8 represents another case. This person always had trouble with his teeth; they ached severely in childhood while he was at school, and he has had brief periods of immunity only since that time. His teeth were in so bad a state

that mastication of food was well nigh impossible, for the pulps were exposed in nearly every one of them and the pressure of solid food on the pulps gave rise to so much pain that the food was bolted down hastily. The dental nervous filaments being in a state of constant irritation, not only gave rise to neuralgias of the head, but the whole system also sympathized. The food was retained about the jagged remains of the teeth, and, becoming decomposed, was taken into the stomach along with the purulent matter from the diseased gums; thus, contaminated by the

secretions of the mouth and imperfectly masticated, it caused an aggravated form of dyspepsia before the patient was sixteen years old. This person, when he came to the New York Eye and Ear Infirmary, where he was first seen, was found to be very deaf in both ears, and the right one was the seat of a very painful inflammatory affection; he complained of being very weak, and his appearance was that of a person who had become prematurely old. His face was pale, the cheeks having dirty-brown patches, from which the outer coating of the skin could easily be rubbed off. His eyes were weak, and a discharge from them had to be constantly wiped away. In regard to the teeth in this case it may be said that the patient never knew what it was to possess the use of them in a normal condition, for all of the back teeth of the second set probably came into the mouth in an imperfect state (deficient in enamel) and were therefore easily destroyed by disease, while the front teeth decayed from neglect to keep them clean.

In Figure 9 are represented the teeth of a boy who was born and brought up in England, where such deformities are, I believe, more frequent than on this side of the water. This person came to the New York Eye and Ear Infirmary in 1880 on account of his deafness, which had been very great in both ears ever since he was eleven years old; he

can hear the voice only when spoken in a loud tone, which makes it difficult for him to perform his duties as cabin boy on board ship. The ears never ran, but he began to acquire his deafness during the period of his schoolboy days, at which time he experienced much toothache, and he still suffers from the pains occasioned by the decay of the second teeth. His tonsils are greatly enlarged, which, together with deformity of the teeth, preventing



FIGURE 8.—View of plaster casts of the upper and lower teeth (Cabinet No. 14) of a youth aged twenty-two years.

closure of the mouth, has been the cause of habitual mouth breathing; such breathing prevents the normal development of the ear from taking place, and the irritation produced by the crowded and diseased teeth gives rise to aural inflammation.

It will be seen, by referring to the cut, that a very extraordinary deformity exists, namely, the articulation of the teeth is reversed, the under teeth shutting outside of the upper teeth all around the jaw.

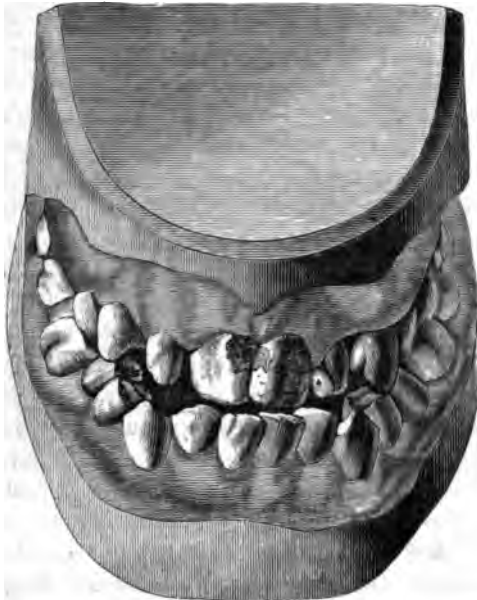


FIGURE 9.—Front view of plaster casts representing the teeth of a boy aged seventeen (Cabinet No. 61).

their loss occasioned a contraction of the superior maxillary arch to the extent of at least one inch.

The lower teeth not having suffered in a similar manner to the upper, the inferior maxillary bone has gained its normal size, and the lower teeth, in consequence, close *outside* of the upper (Fig. 9). Of course the teeth have caused irritation in this case from a very early period in the person's life, and their condition has likewise interfered with mastication. The deformity of the face in these cases is very great.¹

Dental inspection.—Neglect of the teeth among the children of the poor can only be prevented by some system of inspection. Among the well-to-do advice only can be given, but in the public schools arrangements could be made to secure competent assistance from the dental departments of some of the charitable institutions. In places where such institutions do not exist the services of some competent dentist could be obtained. (See page 29.)

¹The author desires to acknowledge his indebtedness to J. M. Stebbins, D. D. S., of New York, for his valuable services in this investigation, and particularly for the *impressions of the teeth*. To his skill in the treatment of such cases many of the children were afterwards indebted for relief.

OUTDOOR BATHING AND ITS EFFECTS ON THE EAR.

Bathing in the ocean, rivers, and ponds is a summer pastime to which children are very much addicted; it is generally regarded as harmless, provided drowning does not take place. If any cautionary measures are thought to be worth while they are usually embraced in two sentences: "Be sure first to wet the head" and "Be careful not to get drowned." This advice to immerse the head immediately on entering the water is certainly not wise and the other caution may be regarded as an unnecessary expenditure of parental concern. Although the exercise of swimming and the self reliance learned from taking care of one's self unassisted in the water have their advantages, yet the evils arising from a too prolonged stay in the water certainly more than counterbalance the possible good that may accrue. From a strictly sanitary point of view it may be doubted if, upon the whole, the loss is not greater than the gain, for children will not exercise any judgment in such matters. Supervision of bathers is not always practicable, but parents and teachers may impart some serviceable advice, which, if followed, may be the means of preventing injury to the ear, which is more liable to injury from the direct effect of the water in bathing than any other organ of the body. Marine animals possessing delicate acoustic organs have them protected from the water by the provision of nature; they are able, in fact, to close up the passages leading to the ears when they are submerged. Man, however, being in no sense a marine animal, has not been provided with self protecting ears; he must, therefore, guard against the entrance of water by devices of his own, which can be at best only partially successful. He may thus in a measure keep the water out of the auditory canal by closing it with pellets of wool, that obtained from the sheep being preferable to cotton on account of its non-absorbent qualities. The excluding of water from the mouth and nose in the surf, or when swimming or diving, is not so easily accomplished, depending as it does on an effort of the will. Holding the nose or plugging its anterior openings is impracticable in most instances.

I have seen many cases of severe aural disease among children—the milder ones are probably neglected—from the use of the New York public baths. Owing to the negligence of some of the superintendents of these establishments, aural disease is frequently contracted by the bathers. Although children are not permitted to remain more than a few minutes in the water, yet they manage, by making the most of the time at their disposal, by diving and struggling in the cold salt water, to get enough of it in their ears to injure the organ more or less.

Those who bathe very much are liable to suffer from slight injuries to the ears from time to time, and, inasmuch as pains are not always present, no trouble is suspected until very considerable impairment of hearing occurs. The exposure of the body on coming out of the water to the gradual drying influences of the wind is, of course, to be avoided. (See page 16.)

MOUTH BREATHING.

A noticeable practice among some school children is that of habitually breathing through the open mouth, a custom that has been regarded as a consequence of defective hearing; but the reverse of this is true; such breathing arises from obstructions of the nasal passages, irregular teeth, enlarged tonsils, &c., and in many instances the habit is acquired where no physical cause is known to exist. Habitual mouth breathing prevents the normal renewal of air in the drum from taking place.

Deformity of the drum-head is a consequence of the absence of the proper amount of air in the drum during the period of its development. The sound transmitting mechanism is crippled by this deformity, and the sense of hearing is correspondingly impaired.

When no physical necessity for this practice exists, its continuance should be discouraged; breathing should take place through the nose, nature having provided this organ with warming cavernous departments which temper the air before it enters the lungs. The great influence that irregularities of the teeth have on mouth breathing is believed to be of sufficient importance to warrant the introduction of a cut (Figure 9, page 34) which represents the case of a lad who became exceedingly deaf from this cause. Every one must have observed the hideous facial expression of persons whose ill developed jaws, irregular and projecting teeth, prevent closure of the mouth.

WHAT TO DO WHEN FOREIGN BODIES GET INTO THE EXTERNAL AUDITORY CANAL.

Foreign bodies in the external auditory canal are not always an inconvenience, nor do they always cause deafness, but when their presence in this situation is discovered efforts for their removal are usually undertaken with an energy proportionate to the alarm of the child's friends, and, when their own efforts have been unavailing, the assistance of some convenient druggist or barber is obtained; these only too often succeed in pushing the offending substance farther in, and then the unskilful work may be carried still further by some bungling pretender, who soon causes irreparable injury to the hearing organ by his more ambitious attempts. Such treatment by incompetent persons at best only results in pushing the foreign body farther into the passage, where its presence against the drum-head may do much harm. Even death is reported to have followed the fruitless probing and tearing of a child's ear, when no foreign body was present. It is a safe rule, therefore, to let foreign bodies alone unless competent aid can be obtained. (See page 12.)

Live insects sometimes gain an entrance into the auditory canal, where their movements give rise to much distress, especially if the drum-head is reached by them; their expulsion can be secured by filling the upturned ear with warm water.

BOXING THE EARS.

Happily the coarse and cruel practice of boxing and pulling the ears as a means of corporal punishment in the schools is nowadays seldom heard of; a few instances only have come to my knowledge through the reports of hospital patients; among common people, however, it is not unusual to find the drum-head ruptured by a blow inflicted by the hand of an enraged parent, and, as there is reason to believe that injuries of this kind are not always reported, we probably see only the severer cases. Death has resulted from a blow upon the ear; in any case the drum-head is liable to be ruptured and hearing permanently impaired.

Punishment cannot be safely inflicted by boxing the ears, and pulling the auricle even is not only very painful, but is sometimes followed by injury to the deeper seated parts.

STREET NOISES.

Some of the school-houses of cities are necessarily erected in the noisy districts, for they must be near to the homes of the pupils. The unremitting din of street noises is undoubtedly distracting, especially when the doors and windows have to be kept open; such sounds fatigue the mind, however familiar they may be. The discomfort from this cause should be considered in selecting the site for a building, and the construction of pavements which allow of the noiseless passage of vehicles in the immediate neighborhood would be advisable.

THE PHYSICAL WELL BEING OF PUPILS.

The question of the accountability of the public schools for the physical as well as intellectual improvement of children is, to some extent, a debatable one; it is a matter that seems to depend, in many instances, on the sense of duty that inspires the management of particular schools, inasmuch as the recommendations for the guidance of teachers concerning hygienics are entirely inadequate. The writer believes that, as regards the more unfortunate children of the very poor—the unwashed of both body and raiment—no inconsiderable number of them would be more benefited by personal hygiene than by mental training; at least the two should go hand in hand in every instance, for *Mens sana in corpore sano*.

The chief object of the public school system being the elevation of the entire population, thus placing them beyond the boundary of charitable support, their bodily well being must be assured by influences brought to bear during the formative period of life.

Children whose hearing has been impaired by scarlet fever, measles, or other diseases of youth, are very often neglected by parents who have neither the knowledge nor the time to give them proper care; or their ears have been purposely "let alone" by the physician's advice; these, when sent to school, greatly annoy the teacher by the vexatious delays which their instruction occasions and by the hindrance they are to others. Notwithstanding the fact that the neglect of parents and

physicians throws increased labor on the teacher, he must take some action respecting this class; for, besides being deaf, many of them suffer from offensive discharges, which are not only an evidence of the progress of aural disease, but are very objectionable to cleanly children who are obliged to sit near them. In numerous instances the teacher may find that his pupils are exceedingly deaf without being aware of the defect themselves; the present writer has known children who could not understand a word spoken to them to remain in school for years without any efforts being made to better their condition; they were regarded as defective in intellect.

Whatever rules may be established to meet the exigencies arising out of deafness in the schools, the teacher may do much to ameliorate the condition of these unfortunate people by making himself conversant with their wants and by prudent and considerate treatment of them while under his charge; and by the enforcement of hygienic regulations a great deal may be accomplished in the way of prevention.

CONCLUDING REMARKS.

The enumeration of all the influences which are liable to affect the sense of hearing in children would be difficult in a paper like this; indeed, when it is seen that no one unhealthy organ can fail to have a deleterious effect on some other organ or on the whole system, there must be a limit to the discussion of the consequences thereof on the ear; enough has been said, the writer trusts, to impress on those concerned the importance of care, combined with a certain degree of solicitude, in the management of the class under consideration; otherwise great injustice may be done them.

In their examinations, deaf children, notwithstanding their defects, may come forward well prepared; but if examined in a hasty or impatient manner, the teacher's questions are liable not to be heard well enough to elicit correct answers, and they are thus unable to secure a promotion which their preparation has justly entitled them to receive.

The surroundings of these children are in every way discouraging; they are disheartened both at home and at school, subjected, as they are, to the jeers, ridicule, and mockery of their companions and to the punishment of parents and teachers for seeming inattention and dulness.

Their inability to hear much of what is said to them, the difficulty they experience in the correct enunciation of words when the vocal organs are deficient, and the dismay occasioned by autophonous hearing and noises in the head, either singly or combined, are sufficient to entirely discourage these sufferers. That they become distrustful, deceitful, and vicious in character is to be expected.

Seeming inattention and dulness arise from the inability to hear, and when proper training has been wanting both at home and at school, in many instances the child will naturally accept the situation and cease to be attentive; it is important, therefore, to maintain the child's inter-

est in instruction by special methods, which shall not permit any slurring work to be done by either teacher or pupil.

Dumbness, so called, proceeds from the indescribable sensation experienced by the child in hearing its own voice within the head or as the voice of a person at a distance; these phenomena of the voice very often confound even the most intelligent person, so difficult is it to understand why such seeming strange alterations in the voice should occur.

When the child experiences autophonous voice, it fancies that it has been deprived of the ability to speak, for, to it, the voice seems to fail of utterance;¹ it now becomes convinced that it is "dumb," and with the feeling comes the peculiar "dumb" expression. But this is by no means always the entire experience of the sufferer, for the voice, which has been said to seem to fail of utterance, seems to ascend into the head, where its unusual reverberations give rise to the belief that the head is "hollow" or "empty." These are alarming symptoms, and, inasmuch as they recur with every attempt at speech, the child fears to make an effort which is attended by such disagreeable symptoms.

Noises in the head are seldom absent when autophony exists. The character of the noise depends very much on the imagination of the patient, and may, therefore, be said to be variable; but it is also influenced greatly by changes in the transmitting mechanism. In the worst cases the patient hears the rushing of a railway train in the head or the raging of a storm; these noises are attended by sounds of ringing bells, pattering hail or rain, &c. When the patient has an interval of relief the noises are more bearable; they may then be likened to the gentle sighing of the wind among the trees, the play of the surf on the sandy beach, the singing of the tea kettle, the buzzing of insects, &c. Patients usually describe these noises as resembling some familiarly remembered sound; thus the distant roar of a waterfall occurs to one or the pattering rain to another whose memory goes back to the days when he slept just beneath the roof. But very often the imagination fails to aid in the description, and with children the difficulties in the way of finding out their feeling are almost insurmountable.

When we come to consider what effect these various experiences must have on the minds of children,² our sympathies should be enlisted in their behalf to the last degree and our patience should be without limit; in a word, when no apparent cause for a child's dulness of action is known to exist, let there be made a thorough investigation into the condition of the acoustic organs before necessarily regarding it as a dunce or feeble-minded.

¹The reader will please remember that, although persons with autophonous voice fancy that they are dumb, or at least dumb in some degree, yet their voice is in reality plainly heard by others.

²The hearing of the greater number of children who have these autophonous experiences remains pretty good as regards what is said to them most of the time; but when suffering from an aggravation of the trouble the noises in the head cause temporary interference, and then greater deafness is experienced.



APPENDIX.

The following tables exhibit the results of twenty examinations made by the author in the New York public and Roman Catholic parochial schools, with the view of ascertaining the hearing power of the pupils.

Tables I to XII, inclusive, show the number of children examined in the colored public schools.

Tables XIII to XVII, inclusive, show the number examined in the Roman Catholic parochial schools.

Tables XVIII to XX, inclusive, show the number examined in the white public schools.

These examinations are not offered as complete, but rather as pioneering efforts which were made by the writer under difficulties.

Differences in the examiner's tone of voice and in the acoustic properties of the rooms prevented uniform results from being obtained. It is a noteworthy fact, however, that about the same ratio of earaches previously experienced was found in all the classes where inquiries on that point were made. From this the inference may be drawn that the etiological factors were similar and that about the average amount of injury to the ear had, therefore, occurred in every class. No attempt was made in these examinations to record the lesser aural defects, which when present are by no means unimportant.

It will be observed that in all the examinations the teachers and pupils were seldom aware that any deafness existed.

Tables showing the results of examinations as to the hearing power of school pupils.

Table.	Number of classes examined.	Number in class.	Sex of class.	Average age of class.	Name of school.	Date of ex- amination.	Degree of impairment of hearing for the voice.
I.	1	20	M. & F.	About 10	Grammar department of Colored Grammar School No. 3.	Apr. 23, 1880	Case 1. Female. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 2. Male. Hears loud voice only in the left ear; ordinary voice in the right ear.
REMARKS.—The teacher who examined this class had a low and soft but distinct voice, and asked the children familiar questions only; they were not required to repeat any test questions that would tax the memory. A very considerable number of them had the sentences repeated several times before they were understood. The teacher said that she had never before observed any deafness in the class. The children were mostly mulattoes; thirteen of the number recollected having had earaches, and it is probable that but few of these possessed normal hearing.							
II.	1	18	M. & F.	About 13	Grammar department of Colored Grammar School No. 3.	Apr. 23, 1880	Case 1. Hears loud voice only in the left ear; ordinary voice in the right ear.
REMARKS.—The teacher was not aware that any of the pupils were hard of hearing. Thirteen of this class stated that they had previously experienced earaches.							
III.	2	25	.....	About 11	Primary department of Colored Grammar School No. 3.	Apr. 23, 1880	Case 1. Hears loudest voice only in each ear; occupies a front seat.
REMARKS.—Fifteen of the children composing these two classes had experienced earaches.							
IV.	2	38	.....	.....	Primary department of Colored Grammar School No. 3.	Apr. 23, 1880	Case 1. Hears loud voice only in the left ear; ordinary in the right ear.
REMARKS.—The teachers, when first asked, were unaware of any deafness in these classes, but afterward recalled the above case. Twelve of these children recollected having experienced earaches. These were among the youngest children in the school, and I was unable to determine in doubtful cases whether the failure to reply correctly was owing to want of intelligence or to impairment of hearing.							
V.	1	15	.....	11	Grammar department of Colored Grammar School No. 3.	Apr. 27, 1880	Case 1. Many years deaf. Hears only loudest voice in the right ear, and loud voice only in the left ear.
REMARKS.—The teacher was aware of this one case; he was, she said, a "little deaf," and being a mischievous boy he was required to occupy a back seat. Four of these pupils stated that they had suffered with earaches.							

VII.	1	21	About 12	Grammar department of Colored Grammar School No. 3.	Apr. 27, 1880	None of the pupils of this class were found to have any marked impairment of hearing for the voice.
REMARKS.—Twelve of these pupils stated that they had experienced earaches.						
VIII.	2	23	15	Grammar department of Colored Grammar School No. 3.	Apr. 27, 1880	Case 1. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 2. Hears loud voice only in the left ear; ordinary voice in the right ear.
REMARKS.—These two deaf pupils were mulattoes. The teachers were not aware before the examination of any deaf pupils in these classes. None of the pupils themselves were aware that they had any aural defects nor did any of them remember having experienced earaches. Some of the pupils were over eighteen years of age, and seem to have forgotten these very common experiences of youth.						
VIII.	2	63	M. & F.	7 to 12	Primary department of Colored Grammar School No. 3.	Case 1. Hears loud voice only in the left ear; ordinary voice in the right ear. Case 2. Hears loud voice only in both of the ears. Case 3. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 4. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 5. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 6. Hears loud voice only in the left ear; ordinary voice in the right ear. Case 7. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 8. Hears loud voice only in the left ear; ordinary voice in the right ear. Case 9. Hears loud voice only in the left ear; ordinary voice in the right ear. Case 10. Hears loud voice only in both of the ears.
REMARKS.—Six of these pupils were mulattoes, one of them was quite dark, and the color of the other three was not noted. The teachers had been unaware of any case of deafness among these pupils, and but two of the pupils themselves were aware that they were hard of hearing. Eighteen of the number had experienced earaches.						
IX.	1	14	.....	14	Grammar department of Colored Grammar School No. 3.	Case 1. Hears shouted voice only in the right ear; loud voice only in the left ear. Case 2. Hears loud voice only in both of the ears.
REMARKS.—One of these pupils was a mulatto, the other was dark colored. Neither the teacher nor any of the pupils knew of any deafness in the class before the examination.						

Table showing the results of examinations as to the hearing power of school pupils — Continued.

Table.	Number of classes examined.	Number in class.	Sex of class.	Average age of class.	Name of school.	Date of examination.	Degree of impairment of hearing for the voice.
X.	1	33	.....	12	Grammar department of Colored Grammar School No. 3.	May 19, 1880	Case 1. Hears loud voice only in the right ear; ordinary voice in the left ear.
REMARKS. —This pupil was a mulatto. The teacher of this class once had a pupil who was temporarily deaf, but she knew of no deafness in the class at the time of the examination. The pupils themselves were not aware of any case of hardness of hearing in the class; nine of them, however, had experienced earaches previous to this examination.							
XI.	1	28	.....	6 to 10	Grammar department of Colored Grammar School No. 3.	May 19, 1880	None of these pupils were found to have impaired hearing for the voice.
REMARKS. —Neither the teacher nor any of the children themselves knew of any case of deafness in this class. Fifteen of the pupils stated that they had experienced earaches.							
XII.	1	23	.....	6 to 9	Primary department of Colored Grammar School No. 3.	May 19, 1880	Case 1. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 2. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 3. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 4. Hears shouted voice only in the right ear; ordinary voice in the left ear.
REMARKS. —Two of these pupils were mulattoes, one was dark, and the color of the other was not noted. The teacher knew of no cases of impairment of hearing before the examination was made; one of the pupils only was aware of his own deafness. Ten of the class stated that they had previously experienced earaches.							
XIII.	1	35	F.	8 to 12	Roman Catholic parochial school of the Church of the Assumption.	May 18, 1880	Case 1. Hears loud voice only in the left ear; ordinary voice in the right ear. Case 2. Hears loud voice only in both of the ears. Case 3. Hears loud voice only in the left ear; ordinary voice in the right ear. Case 4. Hears loud voice only in the right ear; ordinary voice in the left ear.
REMARKS. —The teacher was not previously aware that any of the pupils had imperfect hearing nor were the pupils themselves. Sixteen of them remembered having had earaches.							

XIV.	1	40	F.	9 to 13	Roman Catholic parochial school of the Church of the Assump- tion.	May 18, 1880	Case 1. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 2. Hears loud voice only in the right ear; ordinary voice in the left ear.
REMARKS.—Neither the teacher nor the pupils themselves were aware of any impairment of hearing in the class. Five of the pupils stated that they had suffered with earaches.							
XV.	1	48	M.	9 to 13	Roman Catholic parochial school of the Church of the Assump- tion.	May 18, 1880	Case 1. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 2. Hears loud voice only in the right ear; ordinary voice in the left ear.
REMARKS.—Neither the teacher nor the pupils themselves were aware that any deafness existed in the class. Thirteen of the pupils had had earaches.							
XVI.	1	48	M. & F.	8 to 12	Roman Catholic parochial school of the Church of the Assump- tion.	May 21, 1880	Case 1. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 2. Hears loud voice only in the left ear; ordinary voice in the right ear. Case 3. Hears loud voice only in the left ear; ordinary voice in the right ear. Case 4. Hears loud voice only in the right ear; shouted voice in the left ear. Case 5. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 6. Hears loud voice only in both of the ears. Case 7. Hears loud voice only in both of the ears does not hear any sentence completely. Case 8. Hears loud voice only in both of the ears. Case 9. Hears loud voice only in both of the ears. Case 10. Hears loud voice only in the right ear; shouted voice only in the left ear. Case 11. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 12. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 13. Hears loud voice only in the left ear; ordinary voice in the right ear.

REMARKS.—The teacher was not previously aware that any of the pupils were deaf. Five of the pupils stated that they were previously aware of having defects in hearing

Tables showing the results of examinations as to the hearing power of school pupils—Continued.

Table.	Number of classes examined.	Number in class.	Sex of class.	Average age of class.	Name of school.	Date of ex- amination.	Degree of impairment of hearing for the voice.
XVIII.	1	55	M. & F.	6 to 11	Roman Catholic parochial school of the Church of the Assump- tion.	May 21, 1880	Case 1. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 2. Hears loud voice only in the left ear; ordinary voice in the right ear. Case 3. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 4. Hears loud voice only in the left ear; ordinary voice in the right ear. Case 5. Hears loud voice only in both of the ears. Case 6. Hears shouted voice only in the left ear; ordinary voice in the right ear. Case 7. Hears loud voice only in both of the ears. Case 8. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 9. Hears shouted voice only in the right ear; loud voice in the left ear. Case 10. Hears shouted voice only in the left ear; loud voice only in the right ear. Case 11. Hears shouted voice only in both of the ears. Case 12. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 13. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 14. Hears loud voice only in both of the ears. Case 15. Hears shouted voice only in the left ear; ordinary voice in the right ear.

REMARKS.—The teacher never regarded any of the class as hard of hearing. Eighteen of the pupils had experienced earaches.

XVIII.	1	27	M.	11 to 15	Grammar School No. 35, New York Public Schools.	Mar. 5, 1880	Case 1. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 2. Hears shouted voice only in the right ear; ordinary voice in the left ear.
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REMARKS.—The teacher was not aware of any deafness in the class previous to the examination. This class of boys is particularly bright; it is recruited from the well-to-do class of citizens. Mr. Henry E. Pellow, a commissioner of education, who kindly accompanied the author inquired of these boys if any of them were hard of hearing; seven of them said they were. This apparent discrepancy between the recorded result of the examination and the replies given to Mr. Pellow's inquiry is accounted for by the fact that the teacher's voice was loud and distinct and he had endeavored to put the questions plainly.

XXX.	1	27	M.	11 to 15	Grammar School No. 35, New York Public Schools.	Mar. 5, 1880	Case 1. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 2. No hearing remains in the right ear; hears shouted voice only in the left ear.
XX.	1	29	M.	10 to 13	Grammar School No. 21, New York Public Schools.	Feb. —, 1880	Case 1. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 2. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 3. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 4. Hears shouted voice only in the left ear; ordinary voice in the right ear. Case 5. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 6. Hears loud voice only in the left ear; ordinary voice in the right ear. Case 7. Hears loud voice only in the left ear; ordinary voice in the right ear. Case 8. Hears shouted voice only in the left ear; ordinary voice in the right ear. Case 9. Hears loud voice only in the right ear; ordinary voice in the left ear. Case 10. Subject to collis in the head, when he cannot hear loud voice in the right e r. Case 11. Hears loud voice only in the left ear; ordinary voice in the right ear.

¹ Case 4 was suffering with a severe cold in the head at the time of the examination.

REMARKS.—The hearing of this class was tested by the teacher, who gave the pupils short sentences to repeat from a newspaper. He ascribed some of the failures to repeat the sentences to their length. One of the boys found to be deaf had always been regarded as a dull pupil; his seat was on the fourth row from the front.

CIRCULARS OF INFORMATION

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No. 6-1881.

**THE EFFECTS OF STUDENT LIFE UPON THE EYESIGHT, BY A. W. CAL-
HOUN, M. D., PROFESSOR OF DISEASES OF THE EYE, EAR, AND
THROAT IN THE ATLANTA MEDICAL COLLEGE.**

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LETTER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, December 12, 1881.

SIR: In the first circular issued by this Office after I undertook its duties attention was called to the effects of school work upon the eyesight of pupils. The subject has been considered in the Office at different times since, as opportunity has offered. Public interest is especially aroused with reference to the importance of treating color blindness and shortsightedness.

At the meeting of the National Educational Association in July last, Dr. Calhoun, professor of diseases of the eye, ear, and throat in the Atlanta Medical College and an eminent oculist of that city, read a paper on the effects of student life on the eyesight. The paper was warmly approved by the distinguished educators present and its issue by this Office specially desired. I hereby recommend its publication as a circular of information.

Very respectfully, your obedient servant,

JOHN EATON,
Commissioner.

The Hon. the SECRETARY OF THE INTERIOR.

Publication approved.

S. J. KIRKWOOD,
Secretary.

EFFECTS OF STUDENT LIFE UPON THE EYESIGHT.

There have always been and even in our own day and time there still are those who are in doubt as to which is the most important of all our organs of sense. But especially often is the question asked, "Which is the greater deprivation, the loss of sight or the loss of hearing?" How almost universal is it that the blind appear bright, happy, and cheerfully resigned to the great loss they have sustained, while the deaf are not unfrequently dissatisfied, unhappy, and mistrustful. It has been my lot to have had much intercourse with these two classes, as well in private life as in the well filled and well managed institutions for their benefit throughout various portions of the world; and this remarkable contrast between them is the more apparent the more thorough and the more intimate my acquaintance becomes. The doubt, indeed, is untenable, for in the eye we have that organ which brings us into the most immediate relation and connection with the outer world, with mankind, with the brute creation, with all nature; for nature best expresses herself to us through her visibleness—eyesight alone enables us to comprehend. Nature offers much less for the hearing, for never can we learn to conceive of objects as they really are from the noises which may emanate from them and perceptibly strike our ear. On the contrary, imagination readily brings to mind the soft notes of the musical instruments that we see. We can often understand and comprehend men without hearing them, from the movements of the body and from their countenances: we can read from their lips what they speak when not a single tone is audible.

That sight is a direct aid and support to each of the other organs of sense can be readily tested and proven by each and every one. The finest and most delicate viands never taste so well as when we see them. The enjoyment of the most fragrant flower is considerably heightened by the sight of it. A sensation, however pleasant to the touch, is infinitely increased when we see the cause that calls it forth.

It is in the school room that the largest and most important portion of the child's life is spent, and while the whole energy is bent upon the proper development of the brain, it is not seldom that too little attention is given to the true maxim that "only in a healthy body can a healthy mind live." During these same years must the physical development progress; but how often can we trace back to those school days the groundwork of bodily ailments which prove to be stubborn barriers to all future advancement.

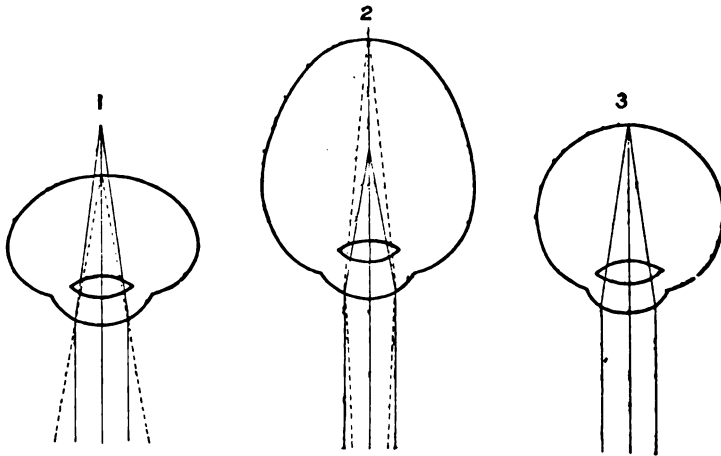
Now, as the eye must play the role of a mediator between the sub-

jects to be learned and the working brain, it is easy to understand that in the same proportion that work is demanded of the brain does a tax fall upon the eye; thus it happens also that the eye, which, like the general body, is perfecting itself during these very years of school life, undergoes not unfrequently powerful changes, which we can speak of only as diseased conditions, not only not admitting of cure, but here and there leading to the destruction of the organ of sight. After we have shown that the eye suffers such powerful and unwholesome changes during the years spent in the school room, then it is our purpose to demonstrate that certain influences during these years *originate* diseases of the eye, enumerating, in conclusion, the means with the help of which we hope to be able at least to limit the frequency and degree of intensity of these diseases.

DIVISION OF THE SUBJECT.

We always judge of an eye according to its length, and in eyes of different length we have different vision. In this particular we recognize three different conditions known as conditions of refraction. These are, first, hypermetropia, or oversightedness; second, myopia, or nearsightedness; third, emmetropia or normalsightedness.

That these conditions may be clearly understood, and for a thorough comprehension of the dangers dependent upon the second one, it is perhaps well that I should say a few words descriptive of them.



The hypermetropic or oversighted eye is too short a ball, and is a congenital defect.

The myopic or nearsighted eye is too long a ball, and in every degree from the slightest to the greatest is not only a real defect but also an absolute disease.

HYPERMETROPIA.

In the interior of every eye there is a circular muscle (the ciliary) known as the muscle of accommodation, by whose action we are enabled

to accommodate our vision to all distances, to near, distant, and all intermediate points. In the emmetropic or normalsighted eye, the action of this muscle produces no peculiar or unpleasant sensations, for it acts within its normal limits. But in the oversighted or hypermetropic eye, both for seeing distinctly in the distance and very specially for seeing near objects, this little muscle must exercise excessive force; and, indeed, the excess of force is the greater the more oversighted the eye or the shorter the ball. A muscle that is brought into constant unnatural activity gradually passes over into a convulsive, spasmodic condition or is so much fatigued that it is no longer able to undergo work. Both of these conditions take place in the human eye. The characteristic symptoms of this condition are as follows: Such persons (adults as well as children) are able to execute the very finest work, for a greater or less time, perhaps without trouble, then gradually, maybe suddenly, the work becomes indistinct, obscured, and things seem to run into one another. At times it appears as if a cloud were floating immediately in front of the eye, and one is no longer able to continue the work, and as a consequence a few moments' rest follows; the eyes are rubbed, and after a pause of a short interval the work is again resumed, but mostly only for a short time, for the same symptoms return. Particularly is this the case towards evening, after an entire day's toil, or towards the end of the week, after a whole week's constant use of the eyes, while on Monday, and especially Monday morning, in consequence of resting the eye, and therefore resting the muscle of accommodation on the inside of the eye, during Sunday, the vision is at its very best. In some instances this wearied condition of the muscle appears so suddenly that the persons affected think themselves blinded, and when they seek assistance and are told that the use of proper glasses will forever remove the trouble, they are astonished as well as rejoiced. Unfortunately, it is not seldom the case that a great wrong is done children affected with oversightedness, parents and teachers attributing the difficulty with which they advance in their studies to a "stubborn will" or "idleness," manifesting itself in their complaints of tired eyes, inability to go on with study, headaches, and so on, when in truth it is due to the overtaxed muscle of accommodation. I have had frequent occasion to call these facts to the attention of parents and teachers whose children or pupils may have been sufferers from oversightedness.

MYOPIA.

But it is to that condition of refraction known as myopia or nearsightedness that I wish to direct attention specially, for while the oversighted eye is an eye of defective growth without disease, the nearsighted ball is not only defective in growth, for it is too long, but is in the real sense of the term a diseased eye. The celebrated Donders, in his work on refraction, takes this as his motto: "I speak it without hesitation, that a nearsighted eye is a diseased eye." Let every one, then,

seek diligently not to become nearsighted. As we have seen, the longer the eye the greater the nearsightedness, and the highest degree of this corresponds to the longest eye. Very rarely before the fifth or sixth year of life does nearsightedness make its appearance, about which time children usually begin their attendance upon school; but from this time on, under certain unfavorable circumstances, the eye gradually elongates, reaching and remaining perhaps at a certain point of elongation, a slight or high degree, or constantly increasing through all the years of school life, even to the twentieth or twenty-fifth year, and indeed in some instances continuing slowly to lengthen through almost the whole of life.

CONSEQUENCES OF MYOPIA.

But it is not simply the elongation of the ball that is so much to be feared, but consequent changes which have an important bearing on the acuteness of vision, on the movements and on the very existence of the eye. If one hundred men with perfectly good eyes are able to recognize or read at a certain distance, say twenty feet, one and the same letter or number of letters, it is reasonable to conclude that any other person with equally good eyes can recognize and read the same letter or letters at the same distance. But if one is incapable of doing this, even with the defect of refraction (if such exists) corrected by proper glasses, then this one has less acuteness of vision than the one hundred who are able to do so. This diminution of vision is a frequent and common circumstance with nearsighted individuals, and depends upon the diseased changes taking place on the interior of the eye brought about by the abnormal lengthening of the ball. The movements of the ball are controlled by six muscles, and over their action nearsightedness exercises a very great influence, because of the ball being so long. There exists a peculiar but certain connection between nearsightedness and the contraction of one of these muscles (the outer), causing the eye to turn outwards and constituting what in common parlance is known as external squint or cross eyes. A corresponding connection exists also between oversightedness and internal squint, so that, indeed, in the majority of instances we are able to say when we see a person squinting outwards that he is nearsighted, and when inwards that he is oversighted. There are, of course, exceptions to this rule. In every nearsighted individual the very existence of the eye is in danger, but especially so in those cases of progressive myopia attaining finally a high degree. Such an eye may any moment become suddenly blinded through detachment of the retina, the lining nervous membrane of the interior of the eye, resulting always in a very material reduction of sight, and in the majority of cases in irretrievable loss of vision.¹

¹ Predisposition to myopia is almost always inherited by at least some of the children where one parent is myopic. In these children myopia may often be detected, if sought for, at a very early age, and is generally evident at from eight to twelve years

Doubtless the question has already been asked, Cannot this too short eye be made longer and this too long eye be made shorter? No, I answer, for these changes in the eye must remain forever unchanged; but we can correct the defect in the oversighted eye, in so far as the unpleasant and painful symptoms from the use of such an eye are concerned, and make the vision as comfortable as in the normalsighted person. And we can make the nearsighted see not only near but distant objects. It would be out of place here to go into a detailed description of the means at our command for such correction. Suffice it to say, it is done in the first instance (the oversighted eye) by the use of convex, in the second (the nearsighted eye) by the use of concave glasses.

The question naturally propounds itself, Are we able to prevent this diseased lengthening of the eyeball, this nearsightedness, or after it has begun are we in condition at least to prevent its increase? This is a question full of the most vital importance, and it is the question that has led to the investigation of the eyes of a very large number of school

of age. Once present, it tends to increase, and should be watched with care. If not existing at least in some slight degree before sixteen years of age it is never developed, even by excessive use of the eyes; nor does it appear unless exceptionally in eyes originally hyperopic.

Three conditions of myopia are to be recognized: stationary myopia, where having reached a certain degree no other change occurs; temporarily progressive myopia, where there is for a time increase of optical and structural changes; and constantly progressive myopia, where the morbid processes go on to more or less destructive terminations.

During the period of youth, which is usually also the time of closest application to study, there is a disposition to gradual development of the inherited myopic tendency; but this may be kept in abeyance if the eyes are used principally for large objects; and if, during this period, the myopia does not become very considerable, it may remain stationary during the rest of life. Temporary increase of myopia may take place during these years of growth and of study from too close application; but, provided its degree is still moderate, its further progress may be arrested at or after maturity if the individual grows more prudent. But—and this constitutes the greatest feature of the disease—if the myopia has, during this period, already reached a high degree, the tendency to continued progress frequently cannot be arrested, notwithstanding the exercise, too late, of the greatest care; and degenerative changes go on in the tissues and media of the eye, with the sad prospect of partial or even total blindness at or before middle age.

The earlier symptoms of progressive myopia are often a mere increase in the imperfection of distant vision, without other apparent inconvenience than the need of stronger glasses. Afterward, as the changed form of the eyeball makes accommodation for near objects less easy, the eyes are readily fatigued and irritable, perhaps hyperæmic, and sensitive to light; * * * *muscæ volitantes* [or perpetually moving black spots] are often complained of. * * * The downward course of progressive myopia is accompanied by * * * much general deterioration of the acuteness of sight, * * * perhaps followed by * * * absolute loss of vision at the very period when family cares or public duties are most imperative.

Since it has been shown that it is especially by continued tension of the muscle of accommodation in study that myopia with its attendant dangers is generated and increased, and as it is well known to be only preventable and not curable, it follows

children, after it had once become positively known that nearsightedness developed itself particularly, indeed almost exclusively, and attained its very highest degree, during the years of school life.

PREVALENCE OF MYOPIA AND ITS CAUSES.

So far as I can gather, there are records of the examinations of the eyes of about 45,000 school children, of all ages and of all grades, representing both white and colored races and both country and city schools. Some of these investigations would lead us to conclude that the percentage of normalsighted children, other researches that the percentage of oversighted, prevailed in the largest degree, but all, without a single

that a change in our methods of education is an absolute necessity, or else this, which might be termed self-imposed disease, will impose a more and more grievous burden on the community.

A child having an hereditary leaning toward myopia is expected to give a large portion of time every day to study of oftentimes badly printed books, perhaps in a dim light, and sometimes with the requirement from his teacher that he shall not take his eyes from his lesson. Myopia is thus begun. As this augments, the child who does not see things about him clearly has less pleasure in the usual sports of his age, and finds more enjoyment in books. His close application to reading, writing, drawing, &c., keeps up convergence of the eyes and pressure upon them of the recti muscles, which tends little by little to increase the ellipsoid change of form and elongate the antero-posterior axis. These alterations go on during the period of growth and of most continuous study, because at this time the tissues of the globe are softer and more extensible than after maturity. If on reaching this latter term the structural changes are still only moderate in degree, the myopia may continue stationary during life. But if at this time great deviations from the normal condition have already been produced, the affected parts are less capable of resisting further yielding, and progressive myopia is thenceforward an ever-present source of danger.

As is evident from the description of the nature of the pathological changes, prevention is the sole resource at our command; restoration is impossible. And in order that preventive measures may be seasonably adopted, it is first necessary that the profession and the public should become alive to the fact that in a large number of cases myopia is one of the gravest affections of the eye, capable of limitation by constant care during childhood and youth; but if not thus limited likely to be a source of future disability and misery, and to be handed down as an onerous inheritance to children. At present the warnings inspired by frequent sad experience in the practice of every skilled observer are almost unheeded, and it is but too common to see the chances of retaining even moderately useful vision in future years recklessly sacrificed to a vain ambition for acquiring mere book knowledge, which when gained is often valueless to its possessor, or, if otherwise it could be usefully applied, cannot be made serviceable because of the imperfection of sight which has been created in obtaining it.

Very high degrees of myopia should also be recognized as an infirmity deserving careful consideration before assuming the obligations of marriage; for those in moderate circumstances may well hesitate to choose partners who, though highly cultivated, may probably at middle life become unable to provide for their households or their children.

It should be understood that if these risks of future disability are to be avoided it is imperative that when they are shown to be unmistakably present such pursuits as increase them must be at once abandoned, in whole or in part, at whatever sacrifice of preference or ambition. Parents should modify plans for their children's training and choice of pursuit, so as not to imperil their eyes. Older persons who have already

exception, prove beyond a doubt that nearsightedness, beginning, perhaps, at nothing in the lowest classes and first years of school life, steadily increases from class to class in the school, until in the highest grades or in the last years of school attendance it has actually developed itself in as many as 60 or 70 per cent. of all the pupils. Among this large number we have children whose ages range all along from five to twenty years and upwards, all similarly occupied, and during a time in which the eye undergoes its most important changes—changes which will influence more or less the regulation of the children's entire lives. In the school room we can follow the eye from its beginning on, from its primitive condition, as it were, where as yet it has been exposed to no injuri-

developed a high degree of myopia, but who feel obliged to continue their preparations for some vocation for which they are especially fitted, or in which they see opportunities, should keep in mind the risks to which they are exposed, and should avoid too intense or continuous application and efforts to obtain class rank or other temporary distinctions, and if necessary should take more time than would otherwise be required for a certain amount of work. If they expect to depend for their support upon occupations which will not only tax the eyes in preparation but in their pursuit, it is of the utmost importance to preserve these eyes in the best condition possible, and not sacrifice future prospects from disability to accomplish what they had qualified themselves to do. Those who do not study as a means of obtaining a livelihood, but merely for the pleasure of literary acquisition, should feel it a duty incumbent on them to refrain from the continuous excessive use of the eyes to which their tastes so strongly tempt them; not only that they may prevent progressive and dangerous changes in their own eyes, but also to avoid developing a condition which will often become a baleful possession for their children.

Vision has been carefully tested in many thousands of eyes of school children in Austria, Germany, Russia, Switzerland, and America, with everywhere similar results. The statistics thus gathered show that while in children at common village schools there is but 1.4 per cent. of myopia, the proportion rises to 21 per cent. in city schools of high grade, and to 40 per cent. in some universities. They show also that not only the numerical ratio but the degree of myopia is far greater in the higher than in the lower classes of the same schools—those children who had no myopia, or only a moderate amount of it, acquiring or largely increasing it in their progress through the advanced classes. Other statistics have shown that in those who studied two hours out of school the proportion of nearsighted was 17 per cent.; in those studying six hours, 40 per cent. In America, probably on account of the greater activity and variety of life and the less degree as yet of hereditary tendency, the ratio has been found to be smaller than in Europe.

These facts deserve serious attention, especially in connection with our undoubted power of modifying or arresting the progress of myopia by proper management and by self-denial during the years of growth and of education. We have seen that if myopia does not begin before the age of sixteen it is not afterwards developed. We know also that if at the age of twenty, when the system has become matured, the myopia remains only moderate in degree, not more than $\frac{1}{10}$, it may remain at this point during life, unless imprudent use of the eyes is indulged in, without exhibiting progressive features. This degree of $\frac{1}{10}$ is deemed by good authorities the line of safety. If at twenty years of age the myopia is less than this, there is little danger, with reasonable care, that further changes will declare themselves; if more than this degree exists, constant watchfulness is needed to prevent further deterioration.—(The Diagnosis and Treatment of the Diseases of the Eye, by Dr. Henry W. Williams, Boston, 1881.)

ous influences, and can follow it through a series of years to an age in which we can mark the boundary beyond which we can say the further development of it under certain conditions will be for good, and under other conditions for evil.

Now, we have found that in the very early years of life no eye is nearsighted, and even in the lowest classes at school no nearsightedness exists, or, if at all, only in the slightest degree, and also that in the highest and last school classes, containing the oldest pupils, as much as 70 or even a larger per cent. of the scholars are nearsighted. Knowing all this, the question presses itself upon us, How is it possible for an eye in a space of time from twelve to fifteen years to undergo such a transformation? If nature prescribes or dictates these changes in the human eye, why is it, then, that all are not nearsighted? Or do unfavorable circumstances or conditions lend their assistance in bringing about this diseased lengthening of the eyeball? Or have the sufferers inherited the disease from their parents or ancestors; and, if so, why is it that these children are not nearsighted from birth?

Some very interesting observations have been made during these investigations, and prominent among them are:

(1) That oversightedness (a too short ball) is originally the normal condition of the eye, and to reach the nearsighted state (a too long ball) the eye must pass through the normalsighted condition (a normal sized ball).

(2) That with the increase in years and with the rise in classes the number of nearsighted children more or less rapidly increases.

(3) That nearsightedness is much more frequent in city schools than in schools in the rural districts, due to the better surroundings in the country, less strain and more rest for the eye.

(4) That colored school children are remarkably free from nearsightedness, the percentage being exceedingly small. In my own examinations of this class of students, I have seen very few who were nearsighted.

(5) That children frequently have the trouble whose parents or grandparents had the same, and that the acuity of vision is more frequently defective among the nearsighted than among any others.

I have before me the results of the examinations of the eyes of nearly 2,200 school children in and around Bern, the capital of Switzerland, and I take these tables because they are a fair type of all the others. These show that a majority of the children begin school life with emmetropic or normal conditioned eyes, but that the number of normalsighted children invariably and constantly diminishes as they rise from grade to grade. They show, also, on the other hand, that myopic or nearsighted eyes scarcely exist at all, or in very small numbers, in the youngest children or in the lowest classes, but as the children grow older and go higher and higher in studies requiring closer application of their eyes, just as invariably and just as constantly does nearsightedness increase, normalsightedness diminishing under the opposite condition of

things. In similar proportion, also, as nearsightedness increases does oversightedness diminish. This shows beyond the shadow of a doubt that both normalsighted and oversighted eyes (with one of which almost all children are born), under the influence of school life and other unhealthy surroundings, gradually lose their healthy condition, until finally in the last school years and in the highest grades or classes nearsightedness, a truly diseased condition of the eye, becomes the condition of refraction in as many as 70 per cent. of those now just in the very beginning of manhood or womanhood.

This is truly a sad picture and a sad commentary upon the boasted civilization of the latter half of the nineteenth century, but it is true to the very letter, and needs but a most superficial study of the subject to convince him who doubts most.

But not only among school children do we find nearsightedness developing itself, but also among teachers, book-keepers, engravers, watch-makers, newspaper men, and indeed among all those who have occasion to look at small objects for a long time, keeping the muscle of accommodation in a continued strain for a greater or less period. In all adults, however, the disease develops itself with much less frequency and with more difficulty than in children, because the tissues forming the eyeballs in the grown person have received their growth, become hardened, and are much less influenced by excessive use than those of a child. Is it, then, a great misfortune to become nearsighted? Since a nearsighted eye is a diseased eye, this question bears its own answer upon its face. But what is the cause of nearsightedness; and since we cannot cure the disease, cannot make this too long ball short again, are we not able to prevent others from falling into the same unfortunate condition? The two principal causes are heredity and occupation. Others may exist, but they are unimportant in comparison with these two. That oversightedness is often hereditary is a matter of everyday observation, several members of the same family not only having the defect but oftentimes having it exactly in the same degree that existed in the eyes of their parents or grandparents. Of necessity must hypermetropia or oversightedness be at least congenital, but not so with myopia or nearsightedness, for it can either be hereditary or acquired. The tendency to the trouble may exist from birth, but the disease itself may never crop out unless conditions favorable to it present themselves. On the contrary, also, very many children acquire nearsightedness in whom there is no natural tendency to the disease, whose parents or grandparents were entirely free from it.

HEREDITY AS A CAUSE OF MYOPIA.

It has been mentioned that in the children in country schools nearsightedness is, comparatively speaking, scarcely to be found. These pupils are the children of parents who themselves, perhaps, attended school but little during the early years of their lives and have strained

their eyes very little on near objects; hence the absence of an hereditary tendency to the disease in their children. The parents and grandparents of city school children have themselves, perhaps for generations back, attended city schools, and have year after year engaged in those avocations in the city which are a constant strain to the muscles (particularly the ciliary) of the eye, leading ultimately to a lengthening of the ball, a tendency to which is transmitted from generation to generation. Out of nearly five hundred negro school children examined in New York by Dr. Callan, only $2\frac{1}{2}$ per cent. were found to be nearsighted, and out of thousands of the natives of British India examined by British surgeons not a single one was found to be nearsighted. Among a large number of negroes examined by myself from time to time, not more than half a dozen cases of nearsightedness have as yet been revealed. These were in grown negro men, who for eight or ten years had applied themselves unremittingly to their studies and had acquired a very extraordinary amount of intelligence, but at the cost of a defect of their eyes which must forever leave them in a diseased state. The negroes, then, are as yet but little subject to nearsightedness; because their forefathers never had occasion to use their eyes to an injurious extent they have inherited from them only the tendency to good eyesight.

MYOPIA DUE TO BAD AIR OR DEFECTIVE LIGHT.

Now, while heredity gives rise to the tendency to nearsightedness and certain subsequent avocations cause its full development in a large number of instances, still there is no doubt whatever that the avocations of individuals during school years, as well as later, are often the sole cause of the disease, without the existence of the slightest hereditary tendency. In the school room there are two kinds of influence that work injuriously upon the eyesight. Under the first are classed all those things which compel the eye to strain itself in order to see distinctly small letters or objects; under the second, all those which cause a congestion or rush of blood to the head and eyes. To the first belong bad ventilation and improper light, too small and imperfect type, pale ink, many successive hours at the same kind of work, as in reading, writing, sewing, &c., without change or rest of the eye, all sorts of toil causing the use of the eye until late at night and sometimes with very defective light. To the second belong not only those things just enumerated, but also the construction and arrangement of school desks and benches, which, in many schools, make it next to impossible for pupils to hold their bodies in proper position for any length of time.

In order to demonstrate the role that bad air, bad light, &c., play in the school room, I extract some pertinent remarks from a paper published by Dr. Loring, of New York. He says: "I am, therefore, of the opinion that bad air alone, acting as the primal cause, may set in train a series of morbid processes which may, and often do, affect not only the *working capacity and integrity* of the organ, but which may lead even to its

total destruction. Thus simple irritation of the mucous membrane of the eye may, and often does, pass into actual inflammation, which, increasing in violence, may proceed from part to part till the entire organ is involved, and thus the sight become impaired or totally lost.

"Ought not the light to fall, not full in the face of the child, but first on the book or work and be reflected into the eye? Before answering this question precisely as it now stands, I should like to premise it by making the general assertion that not only is the direction in which the light comes important, but also its quantity and quality. Reduction in illumination is as a rule precisely equivalent to a reduction in the size of the object; therefore, the less the light the nearer an object must be brought to the eye, and the greater the strain in the act of vision. It is impossible to fix with any scientific exactness just the size that a window should be to give sufficient light for visual purposes, since this must vary with the exposure and surroundings of the room; but it has been reckoned in Germany that for a class room containing twenty persons there should be at least four to six thousand square inches of glass, which would give to each scholar from 200 to 300 square inches, or what would be represented by a pane of glass from 14 to 17 inches square. Such a room as this would be sufficiently lighted in any part. A room 20 feet square should not contain less than 70 to 80 square feet of glass, and it may be laid down as a rule that too much light cannot be obtained in a room, as all excess of glare can be guarded against by artificial shades if properly applied. More light enters the room from the same amount of glass from the south than from the north, and a southern, southeastern, or southwestern exposure is better than a northern, northeastern, or northwestern, especially for class rooms, and this, too, simply in regard to the amount of light and independent of the purifying influences of direct sunlight. That a north room is better for the purposes of the artist is due to other causes and does not affect the general rule. [But see the opinion of Dr. Jones, quoted on p. 18, note.]

"The light should not come from directly in front, and especially is this the rule when artificial light is used. For when the light comes from directly in front of the person, the pupil of the eye becomes unduly contracted, which is equivalent to reducing the quantity of light, since less light enters the eye from the object viewed, while the eye is exposed to too much light reflected from the surrounding objects, and from the direct rays from the source of illumination. Neither should the light come from directly behind, as the object then lies in the shadow of the body. Nor yet from the right side, because in writing the shadow of the hand falls across the page, and a moving shadow over a lighted surface not only reduces the quantity of light and leads to a stooping position, but it is also more annoying to the eye than a uniform reduction in the illumination of even a greater degree." The best direction for the light to come from is the left hand side, and

from, rather above than below the level of the head. Windows, therefore, should not be run down too near to the floor, as they often are in class rooms and offices. I do not agree with the opinion often expressed, that the best light is that coming from directly above. I cannot refrain from adding, in this connection, the conclusion founded on Dr. Cohn's elaborate investigations in regard to nearsightedness among school children in Germany. He thus formulates it: "The narrower the street in which the school-house was built, the higher the opposite buildings, and the lower the story occupied by the class, the greater the number of nearsighted scholars." I should, then, from these considerations, say that the angle at which the light strikes the eye is important.¹

SIZE AND QUALITY OF TYPE TO BE PREFERRED.

Do the size and quality of the type cause disease of the eye? Young children should never hold the book nearer to the eye than ten inches and adults never farther from the eye than eighteen inches. As soon as perfectly distinct vision at this distance cannot be obtained, and if obtained cannot be easily maintained, recourse should be had to spectacles. The finer, then, the type the closer the book has to be brought to the eye, and the greater the tension or demand on the focalizing power and the muscles which are used in bringing both eyes to bear at the same time upon the object viewed. These two acts make what is called the act of accommodation of the eye, and tension of the accommodation, that is, long continued use of the eye upon objects brought close to it, is considered by all authorities one of the most (if not the most) fertile causes of progressive nearsightedness. This condition may be accompanied by morbid processes which may involve the deeper seated membranes of the eye to such a degree as not only to affect the vision but to destroy it. Too fine print, therefore, may be, I think, looked upon as a factor in producing eye disease, affecting not only the external but also the internal parts of the organ. On the other hand, too coarse print is wearisome to the eye, as it requires more exertion of the muscles governing the movements of the eye, that is, for a given amount of matter, and especially is this the case when the breadth of the page is, if anything, too great. This causes undue exertion on the part of the muscles which move the eye in a lateral direction and is apt to lead to confusion in finding the next succeeding line. It is for this reason that the narrow form of English blank verse is so little fatiguing to the eye. A double column page which is well printed and properly divided is cer-

¹ "The window by which we read, write, draw, sew, or do any other such work should look towards the north rather than towards other directions. And the desk or work-table should be so placed that the light from the window may fall obliquely from above, behind, and over the left shoulder, on the book, paper, or work. By this arrangement the light does not fall directly into our eyes, nor is it reflected directly back from the object into them."—(Defects of Sight and Hearing, by Dr. T. Wharton Jones.)

tainly preferable to the same amount of matter extending in a single line across the entire page.¹

The less contrast there is between an object and its surroundings, the more difficult it is to see the object and the closer it has to be brought to the eye. A faintly printed page has, therefore, to be brought nearer, oftentimes very much nearer, than a well printed page of the same type. There is nothing more wearisome to an eye than an indistinct and blurred image of a familiar object, and no more striking example of this could be found than blurred or faintly printed type. This should be sharply cut, and be what is technically called "heavy faced," in contradistinction to "light faced" type. Of the former a common example is the English; of the latter, the American. The ink is also a matter of importance. English ink, like the type, is vastly superior to ours. The color and quality of the paper have also an influence upon the ease with which the act of vision is performed; for, while it is true that there should be as much contrast as possible between the type and its surroundings, care should be taken to avoid all glare or dazzling of the page. Pure white paper, such as is ordinarily used in this country, should not be employed, most of all when it has, as it often has in the cheaper papers, a metallic lustre with a bluish tinge. I have come to the conclusion that, as a rule, a very light, almost imperceptible, yellow tinge is the best. This is known to the trade as "natural" tint, from the fact that it contains no dye whatever and has been bleached only to a moderate degree. It has the color of unbleached cotton cloth. It is, however expensive, as it can be made only from the best stock; still, a very good imitation can be had in some of the second class papers at a moderate cost. The paper should be thick enough not to be transparent, and should have a close, fine texture and be free from sponginess. From these facts, I am of the opinion that, both in respect to size and quality, imperfect type may be considered as a factor in the production of eye diseases.

NEED OF REST AND CARE FOR THE EYES.

Does too long and constrained attention to one object, without rest or variety, cause eye disease? That prolonged tension of the eyes may be the primal cause of a great number of diseases of the eye is admitted by all authorities, and the more fixed the gaze and the narrower the field

¹ The individual experience of each reader will be his most trustworthy guide as to the suitability of different sizes of print for his own use; any suggestions on this point, therefore, beyond the caution to heed the first intimations received that the strain to which the eyes are being subjected is too great, seem uncalled for. In order that the reader, however, may be able to determine whether he enjoys normal vision there has been added in the appendix a set of Snellen's test types, with the respective distances in feet at which each should be distinctly legible. Various schemes for determining visual power have been devised, but the test types of Professor Snellen, of Utrecht, here given, have long been in the most general use. At the London International Medical Congress of 1881 they were named as the proper tests for mariners and railway employes.— (Note by the Commissioner.)

of view the greater the danger. If it be true that continued tension of muscular and nervous force unduly exhausts the energy of any organ, it is doubly true of the eye. The nervous energy of the retina, sensitive and rapid as it is, is just as rapidly exhausted, and the act of reading would be unbearable after a few moments if the eye did not quickly change its position from letter to letter and from line to line. Diversity of action is as much a necessity in the case of the eye as of any other organ for an easy and lasting performance of its functions. No eye, in my opinion, should be used more than an hour at the furthest in the act of reading or writing without an interruption of the gaze, and it would be better if several, if not many, interruptions should take place in the same time. This usually happens in the case of adults, for some reason or other; but children, in order to complete their tasks in an allotted time, are often compelled to use their eyes, without sufficient interruption, by the hour together. It would be impossible, and out of keeping with the condensed character of these remarks, to enumerate here all the diseases which may arise from prolonged tension of the eyes on near work; but there is one affection produced by it which is so frequent in its occurrence and so unfortunate in its results that I cannot refrain from quoting the remarks of the distinguished Professor Donders. He says:

"The distribution of nearsightedness chiefly in the cultivated ranks points directly to its principal cause, viz, tension of the eyes for near objects. Respecting this fact there can be no doubt. Three factors may here come under observation: (1) Pressure of the muscles on the eyeball in strong convergence of the visual axes; (2) increased pressure of the fluids, resulting from accumulation of blood in the eye in stooping; (3) congestive processes in the eye, which, tending to softening, give rise to extension of the membranes. Now, in connection with the causes mentioned, the injurious effect of fine work is, by imperfect illumination, still more increased. To this it is to be ascribed that in schools where, by bad light, the pupils read bad print or write with pale ink, the foundation of nearsightedness is mainly laid, which, in fact, is usually developed in these years."

But little will be said in reference to desks and seats, though it would seem they deserve the most careful consideration on the part of those in charge of the education of children, since a large portion of a child's life is spent behind the one and upon the other. It has been contended that every pupil should have a desk to suit his size, but that in many instances is impracticable for several reasons, but mainly on account of the expense. The chief idea to be borne in mind in the arrangement of desks is that they should be so constructed that the children can sit without becoming too rapidly wearied and that the desks should not be so low as to cause the body to bend forward nor so high as to make studying difficult, as in writing, for instance. But of what use are all these proper arrangements at school, if, as soon as the children get to their own homes, they write and study at tables that are inconvenient even for the grown

members of the family? Of what benefit is the most superb illumination in the school room if the children, when at home, work several hours of the day in the corner of a badly-lighted chamber, and at night by the light of a flickering candle or lamp, used perhaps by five or six others of the family, and which is insufficient to properly light up the book or map of even one or two of these children? If we wish to protect the eyes of children during the time in which they are acquiring their education, give them, above all things else, plenty of well regulated light. They should be prohibited from using their books during twilight, by the light of the moon, and certainly should they be forbidden such dangerous use of their eyes as reading in bed. Says a well known writer: "It seems to me that the very etymology of the word education enforces the idea that the child is to grow better and stronger up through his school life; that by proper regulation of his diet and management at home, by properly lighted school-rooms and properly constructed desks, and by a better regulation of his hours of study, he should represent a much higher type of life when he has reached the age of twenty-five than when he is just taken in hand with the view of giving him book knowledge. We certainly should not damage the eye in the process of education, and I believe that the damage done to the eye is to be taken as an index of that which is done to the other organs of the body." In conclusion, when every school-house in the land and every school room and every school desk shall have been properly constructed according to the most scientific investigations, and plenty of good light thrown upon books properly and plainly printed with good ink; when the habits of study of all children shall have been regulated, both in the school room and at home, then do I feel convinced that, while we may not be able to banish these particular eye diseases from the world, without doubt will we be able to reduce them in number and in severity.

APPENDIX.

DR. SNELLEN'S TEST TYPES.

In order that readers may ascertain whether they have normal vision, a list of Professor Snellen's test types is subjoined. The figures over the letters indicate the number of feet at which the letters should be distinctly legible. Variations from normal vision may be recorded by using the numerals given as denominators and the distance in feet at which the letters are clearly seen as numerators; thus, if letters which should be legible at twenty feet can only be clearly perceived at ten feet, vision = $\frac{1}{2}$.

1 ft. 8½ in.

DSLAOMTEU

2 ft. 6 in.

ULNGEDTSFO

3 ft. 3½ in.

FOECHSUTDL

4 ft. 6 in.

ECLSTUFDH

6 ft. 1½ in.

SLFDCEUHTO

7 ft.

DFSEOLUHCT

9 ft.

TCHDFSEULO

10 ft. 1½ in.
E C H D L U T O F S

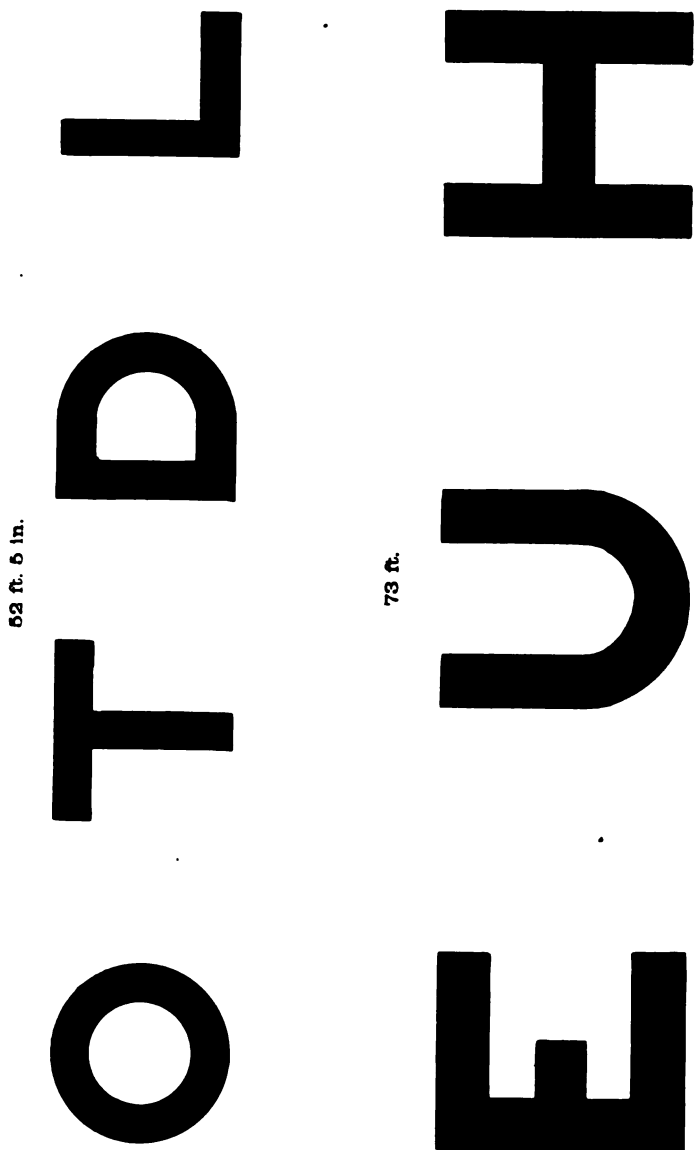
14 ft.
F O L U E D S T C H

15 ft. 2½ in.
L S E O F D T H U C

21 ft.
U F D T C L S E O H

32 ft. 1 in.
C H O F D T

42 ft. 8½ in.
D F S E U



CIRCULARS OF INFORMATION

OF THE

BUREAU OF EDUCATION.

No. 1-1882.

THE INCEPTION, ORGANIZATION, AND MANAGEMENT OF TRAINING
SCHOOLS FOR NURSES.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1882.

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LETTER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., March 16, 1882.

SIR: Three years ago this Office published a circular of information (No. 1, 1879) advocating the extension of already existing facilities for the training of nurses for the care of the sick and the provision of new opportunities for acquiring this knowledge. Public opinion has matured rapidly since that time in many of our larger cities and towns; the services of trained nurses in private families have increased and given entire satisfaction. The prejudices, natural in all such cases, once existing in the minds of the public, and especially of the medical profession, have been dispelled wherever the trained nurse has been tried. The patient in her care is surrounded with an atmosphere of unobtrusive vigilance and quiet skill which seems to continue and carry on the good effect of the physician's visit and to fulfil his directions in the same spirit in which they are given. The patient's family find the trained nurse a great relief to their anxiety and a trustworthy sharer in their toil, while the physician finds an intelligent and competent assistant, who understands what should be done without a wearisome preliminary explanation, who can be depended on to keep an accurate record of symptoms, and from whom he receives the respect and obedience which his position demands and which her education has taught her to accord.

This public sentiment in favor of trained nurses has led naturally to a desire to increase their number by means of training schools, so as to approximate in some degree to the demand for their services.

This Office has received many requests for information as to the proper way to establish, organize, and manage schools of this kind.¹ The fol-

¹ It was in view of the urgent character of this public desire that the means of supplying trained nurses should be increased and the widespread interest excited by the new enterprise in this city, that I addressed the following letter to the board of managers of the Washington Training School for Nurses:

DEPARTMENT OF THE INTERIOR, BUREAU OF EDUCATION,
Washington, March 31, 1881.

MADAM: I have received several requests for information respecting training schools for nurses, the need of them existing, their establishment, organization, management,

lowing pages contain a succinct account of what experience has recorded as of value for this purpose, and I recommend their publication as a circular of information.

Very respectfully, your obedient servant,

JOHN EATON,
Commissioner.

The Hon. the SECRETARY OF THE INTERIOR.

Publication approved.

A. BELL,
Acting Secretary.

&c. I shall be greatly obliged if your board will communicate to me their views and any suggestions they may have to offer on the subject.

Very respectfully, yours,

JOHN EATON,
Commissioner.

Mrs. S. A. MARTHA CANFIELD,
Corresponding Secretary of the Washington Training School for Nurses.

TRAINING SCHOOLS FOR NURSES.

I have been long of the opinion that there ought to be in all the principal towns and cities of the Union institutions for the education of men and women whose duty it is to take care of the sick and to carry out the injunctions of the medical attendant. * * * Millions of human beings perish annually in the so called civilized world for the want of good nursing.—DR. GROSS.

The vaguely favorable sentiment in the professional and public mind alluded to in the foregoing letter is material ready to be worked upon, and with excellent results, if properly managed. The advocates of a training school for nurses will be apt to find each other, to some extent, by ordinary social intercourse. Such persons should take measures to enlist the good will of the medical profession in the vicinity and to arouse public interest. If the city or town have a hospital, it is all important to obtain the coöperation of its medical and surgical staff, so that the pupils of the future school may have continuous and supervised practical training in their duties, in addition to the theoretical instruction given to them in class. The whole subject should be presented in such a way as to win the confidence of the profession in the moderation, common sense, and practical character of the persons engaged in the work. The public mind should be familiarized with the idea that those who take care of the sick must be educated for that occupation.

When the necessity of having trained nurses in any city or populous locality has engaged the sympathies of a sufficient number of active, intelligent, and leading minds, private meetings may be held in social circles to exchange views as to the best mode of adopting one or other of the various plans for organizing and supporting a school of trained nurses, and the details of some suitable plan should be decided upon. The local circumstances should be considered with care, and every effort should be made to construct the scheme in such a way as to meet local requirements and avoid the friction of local antagonisms. The more carefully and thoroughly the work is done at this stage the less trouble will be experienced afterward. The reasons for each detail of the plan should be clearly comprehended by the leaders of the work, and the best method of defending or advocating it with different persons understood. Institutions of this kind are partly educational, but their work is in great measure of a social and beneficial character, and is liable to serious injury if the organization and constitution of the school or of the parent society have to endure frequent changes and amendments.

Simultaneously with these private conferences, the assistance of the local press may be interested and advantageously sought for the publication of *short articles* on the subject of nurses' training schools, such

as the place and time shall render appropriate. Opinions of distinguished physicians will be found specially useful.¹

ORGANIZATION.

These preliminary labors, if properly managed, will secure in most cases the coöperation of enough well wishers and people of public spirit to justify the calling of a public meeting, at which the necessity and advantages of having such an institution established should be laid before the public by able and eloquent advocates and a plan for the formation and government of the future institution submitted to the meeting for its adoption.

The plan as proposed having been adopted, the next public step is the procurement of an incorporating instrument, either under the general laws of the State or by a special act; this instrument should mention as incorporators a sufficient number of the organizers of the school to insure the selection of officers in harmony with its objects and devoted to its success; if advisable, the charter may be issued to certain persons designated therein as officers and trustees and to their successors and associates. The incorporating instrument should empower the school to instruct its pupils in necessary branches of study, to confer degrees on those who have been trained and examined, to hold real and personal property, and to have such other powers as the law of each State may grant.²

The selection of officers and trustees should be provided for in the constitution of the corporation; details as to time and manner of selec-

¹ Dr. Minot, of Boston, says: "I always recommend my patients to procure, if possible, the services of one of the nurses who have graduated from the training school; they are far more efficient and acceptable than any others."

Dr. Herrick, of New Orleans: "In our late epidemic we were all impressed by the immense superiority of experienced and skilled nurses over the average of friends and relatives who were in attendance in the majority of cases among the middle and lower classes from their inability to pay the high wages commanded by professional nurses. Aside from the superior knowledge and dexterity of skilled nurses, they are not carried away by their personal sympathies for the patient, and besides they know that they have a reputation at stake, and are thereby stimulated to meet the requirements of duty. I am therefore clearly of the opinion that a class of professional nurses, which already exists in a very imperfect fashion in our large cities, ought to be recognized as a social necessity in populous communities. * * * Public hospitals are now recognized as indispensable auxiliaries to a medical education, and there is no good reason why they should not be further utilized for supplying society with skilled nurses."

Dr. Mitchell, of Memphis, Tenn.: "If we had had trained and faithful nurses, the mortality in the late epidemic would have been less than half what it was. A nurse should possess a natural aptitude to wait on the sick; should be intelligent, honest, and strictly temperate; should understand the use of the clinical thermometer and of the syringe for moving the bowels, and should know how to count the pulse and something in regard to its peculiarities. Especially should he learn that discretion which should characterize all his movements, looks, and language in the sick room."

² The reader will find a copy of the charter of the Washington Training School for Nurses in Appendix B, page 15 of this pamphlet.

tion, number of officers and specific duties of each, length of service, &c., should be governed by the local circumstances. The board of trustees, from which the president and other executive officers of the society may be chosen if desirable, should not consist of less than twelve members as a general rule. If the term of office as a trustee be three years, it is usually proper and safe to elect one-third of the board every year. In this way, perhaps, the benefits of experience and of "new blood" can be best attained. The reelection of efficient and active trustees may thus be secured and the dropping of indifferent and negligent members effected without offence.

The constitution of the society should also contain provisions for the adoption and amendment of by-laws, and for such other provisions as are deemed of permanent value as the organic law of the society.

The by-laws should conform to the provisions of the charter and constitution, and in certain cases might profitably comprehend the rules adopted for the instruction, government, duty, payment, and service of the nurses to be trained by the school.¹

Before considering subjects and methods of instruction, it is proper to consider what sort of persons should be selected for pupils in such a school. It is obvious that only persons with perfect health and of most respectable reputation should be recommended; applicants should therefore be not less than 20 nor more than 40 years of age, strong in body, mild and serene in temper, firm in will, and sufficiently educated to read and write readily. They should not be burdened with the care of a family. Those who display most of these qualities during the probationary period should be selected for the course of training, and the *morale* and discipline of the school should be such as to strengthen and unify these qualities.

The selection of a faculty or corps of teachers for the school is one of the most important steps the society has to perform. The qualifications of the physicians selected should be such as to command respect from the community, since much of the value and efficiency of the nurse depends on the character and amount of the education received from the teachers.

INSTRUCTION AND MANAGEMENT.

The plan of instruction which has been found to work well in many schools is based upon the idea that the teaching should be both theoretical and practical, and that it should be imparted by lectures on special branches of knowledge and by actual attention to patients in a hospital.

The lectures referred to should number at least 36, though they may be extended to 48 or more with profit. They should comprise the following subjects: (1) anatomy, (2) physiology, (3) hygiene, (4) dietetics,

¹A set of the rules actually in force in one of the most successful schools of this character, the Bellevue Hospital Training School for Nurses, will be found in Appendix D, page 2

(5) medicines, (6) medical nursing, (7) surgical nursing, (8) obstetrical nursing, and (9) care of sick children and infants.¹

These lectures may be spread over a period of four or more months and divided into courses of six or eight lectures on each topic, so as to avoid putting too great a burden on any one instructor. The subjects should be treated in a manner as different from that used in teaching medical students as the differences of previous education and future occupations will render advisable.

Mention has been made of the importance of practical training in a hospital. This should be selected, if there be any choice, for its superior accommodations, equipment, and number of acute cases for treatment. Such a hospital is, indeed, the best place in which pupil nurses can acquire the practical part of their business; and no such hospital should be without a good training school from which it may procure its nurses, and to which its wards should be open for teaching and practice.

Both nurses and pupil nurses should be required to wear an inexpensive and modest uniform dress, which should unobtrusively but unmistakably distinguish them from patients and casual visitors. This costume need not be monastic in suggestion, or forbidding in appearance, or difficult to keep in order; nor is it deemed necessary that the nurses should be so attired except when actually employed or in class. The practical training should consist usually in placing the pupil nurse on duty for eight hours daily under the direction of trained nurses until the duties and service of the ward are thoroughly learned, when the pupil may be assigned to independent duty in wards until the period of pupilage, one year, has expired. During this period the pupil also should be occupied with attendance on the lectures previously mentioned. In return for this education and hospital training, which should be wholly gratuitous, the pupil should agree, when admitted to the school, to give one year's service for the benefit of the school, acting if thought proper as assistant instructor to the newer pupils.

At the close of the second year, the pupil, having fulfilled all the requirements, should be examined as to proficiency and continuous good behavior, and, if the result be satisfactory, a certificate signed by some designated officers of the society and the school should be granted. This certificate of qualification should insure*to its holder, whenever possible, employment in the hospitals of the locality and cordial recommendations for employment in private practice.

THE NURSES' HOME.

A dwelling house for nurses and pupil nurses, although not an absolute necessity, is yet so advantageous as an adjunct of the training school that it is always advisable to provide for its support at as early a date as possible; funds for the purchase or rental of the property and

¹*Nurses would be much benefited in their management of children if they understood somewhat of the theory and practice of Fröbel's Kindergarten in the nursery.*

for the support of the pupils should be kept distinct. It is better that the home, when possible, should be a building separated from, though near, the hospital. The advantages of such a place, under the supervision of a competent trained nurse, as regards discipline and training are very great; nor are the complete rest and deserved relaxation which a nurse requires after the performance of her daily or nightly duties obtainable so well under other conditions. The home will afford an opportunity to some to learn the refinements and habits of persons in higher social position, and will attract others of a better class than could be drawn otherwise to the work. The physical advantages of a dwelling outside the morbid influences of the hospital should not be forgotten. It has been found in general that good treatment of the nurses in this way has been beneficial in an appreciable degree to the patients in their care.¹

The success and comfort of the home will depend largely on the character and ability of the superintendent or matron. The system of probation through which the pupils should pass will prevent unworthy persons from remaining in the home. If all the nurses are not needed for the work of the hospital to which a school is attached or to supply the immediate demand for private nursing, they may be accommodated in the home for a period and at a rate fixed by the trustee of the society, still being under the control of and responsible to the school.

The management of the home should be unsectarian in religious matters, but the practical tenets of Christianity should be observed and its doctrines treated with respect. Opportunities for attending public worship outside the home should be given, and the private opinions and devotions of the inmates should be respected. Uniformity in dress,

¹ In illustration of the need felt for a separate building for the nurses when not on duty, the following extracts from the official report of the School for Nurses at Charity Hospital, Blackwell's Island, will be of interest: "The school needs first and principally a proper building for the accommodation of its pupils. This is of prime importance on the score of health alone. The responsibility of keeping so many human lives constantly exposed to the atmosphere of disease, in rooms adjoining the sick wards, is a very grave one. Of those who enter upon the duties of their profession here, the majority reverse all the conditions of their former lives. Those who come from the country suffer most. They must exchange pure air for that pent up between thick walls, the faces and forms of nature for the faces and forms of diseased humanity, the manifold relaxations of home for the sight of suffering which they cannot relieve. This of itself is sufficiently dispiriting; but when there is added the actual presence and threatening of death, to which the nurse is always exposed in her own person, it is no wonder that her surroundings often make serious inroads upon a once strong constitution, and the nurse becomes in turn the patient. The remedy does not lie in choosing from the candidates those whom a residence in the city has inured to its atmosphere. Such a distinction would not fail to lower the standard and efficiency of the school in a marked degree, since it is a matter of experience that those whose lives previously to their entering the training school have been passed outside of the great cities make by far the best nurses. In addition, those who come from a distance are not so likely to be diverted from their work or have their interests divided."

in hours for rising, retiring, meals, &c., should be sought for, but not to such an extent as to interfere with the health, comfort, or usefulness of the nurses, or with the efficiency of the work they are called upon to do.¹

In the duty of supervision, the superintendent should follow the maxim, "In essentials, unity; in non-essentials, liberty; in all things, charity."

Particular attention is invited to the various papers in the appendix, which may be found useful in organizing and conducting schools for nurses in places where they may be thought useful.

¹ The rules in force in the home connected with the Bellevue Hospital school will be found in Appendix D, page 27.

APPENDIX A.

Statistics of training schools for nurses; from replies to inquiries by the United States Bureau of Education.

Name.	Location.	Date of organization.	Conditions of admission.	Salary paid pupils.	Text books in use.
1 Connecticut Training School for Nurses (State Hospital).	New Haven, Conn.	1873	Age 22-40, good health and character, and common school education.	\$170 for the term of eighteen months.	New Haven Handbook of Nursing; Anatomy and Physiology.
2 Illinois Training School for Nurses (Cook Co. Hospital).	Chicago, Ill.	1890	Age 25-35, sound health, good common school education.	\$8 a month for first year, \$12 a month for second year.	New Haven Handbook of Nursing; Anatomy and Physiology.
3 Training School for Nurses	New Orleans, La. (348 Common street).	1892			
4 Boston City Hospital Training School for Nurses.	Boston, Mass.	1878	Age 21-35 preferred, good health and character.	\$10 a month for first year, \$14 a month for second year; graduate head nurses, \$20-\$30 a month.	Domville's Manual; Woolsey's Handbook for Hospital Visitors; Bellevue Manual; New Haven Handbook of Nursing; Williams and Fisher's Hints to Hospital Nurses; Lee's Handbook for Hospital Sisters.
5 Boston Training School for Nurses (Massachusetts General Hospital).	Boston, Mass.	1873	Age 25-35 preferred, must be in sound health, and must present on application a certificate from some responsible person as to their good character.	\$10 a month for first year, \$14 a month for second year.	Domville's Manual; Cutter's Anatomy and Physiology.
6 Training School for Nurses (New England Hospital for Women and Children).	Boston, Mass. (Roxbury district).	1893	Age 21-35, term 16 months, satisfactory references.	\$1 a week for first 6 months, \$2 a week for second 6 months, \$3 a week for last 4 months.	New Haven Handbook of Nursing; Bellevue Manual; Domville's Manual.
7 Missouri School of Midwifery and Diseases of Women and Children.	St. Louis, Mo. (721 Chestnut street).				
8 Brooklyn Training School for Nurses.	Brooklyn, N. Y. (257 Adelphi street).	1890	Age 25-35, good health and character, good English education.	\$9 a month for the first year, \$15 a month for the second year.	Domville's Manual; Putnam's Manual; Huxley's Physiology; Smith on Nursing.
9 New York State School for Training Nurses.	Brooklyn, N. Y. (46 Concord street).	1873	Age 21-40, satisfactory references as to moral character and general health, ability to read and write, and an agreement to remain one year.	Board and lodged during the entire course of instruction.	
10 Charity Hospital Training School, Blackwell's Island.	New York, N. Y.	1875	Age 20-35, good health and character, and good English education.	\$10 a month for first year, \$15 a month for second year.	Frankel's Manual; West on Children; Notes on Nursing, by Florence Nightingale.

Statistics of training schools for nurses, &c.—Continued.

Name.	Location.	Date of organization.	Conditions of admission.	Salary paid pupils.	Text books in use.
11 New York Training School for Nurses (Bellevue Hospital).	New York, N. Y.	1872	Age 25-35, sound health, good moral character, and a knowledge of arithmetic, reading, penmanship, and English dictation.	\$9 a month for the first year, \$15 a month for the second year.	Bellevue Manual; New Haven Handbook of Nursing; Draper's Anatomy, Physiology, and Hygiene; Bartholow's Materia Medica.
12 Training School of New York Hospital.	New York, N. Y. (West Fifteenth street.)	1877	Age 25-35, sound health, perfect senses, good moral character, and good common school education.	\$10, \$13, and \$16 a month for the first, second, and third 6 months respectively; graduates, \$25 a month.	New Haven Handbook of Nursing; Bellevue Manual; Smithon Nursing; Notes on Nursing, by Florence Nightingale; Anatomy and Physiology.
13 Home and Hospital of the Good Shepherd.	Syracuse, N. Y. ....	.....	.....	\$10 a month, with board and lodging.	Miss Vetch's Handbook for Nursing.
14 Nurse Training School of the Woman's Hospital.	Philadelphia, Pa.	1861	Age 21-45, intelligence, good character and habits.	\$5 a month for first 6 months, \$10 a month for second 6 months; \$16 a month for second year; board included.	.....
15 Philadelphia Lying-in Charly and Nurse School.	Philadelphia, Pa.	1836	Age 21-40, general fitness for the work, common school education, good moral character, and good health.	.....	New Haven Handbook of Nursing; Anatomy and Physiology.
16 Washington Training School for Nurses.	Washington, D. C.	1877	.....	.....	.....

NOTE.—The Mary Fletcher Hospital Training School for Nurses, Burlington, Vt., is to open in May, 1882. Pupils between 20 and 40 years of age bringing certificates of sound health and good character are taught on the payment of \$10 a session of 4 weeks. Such pupils as are selected to assist in the hospital pay no tuition and are boarded and lodged in the hospital. Instruction is to be given in anatomy, physiology, and nursing.

APPENDIX B.

THE WASHINGTON TRAINING SCHOOL FOR NURSES.

ACT OF INCORPORATION.

This is to certify that the undersigned, Flodoardo Howard, M. D., Christopher C. Cox, M. D., Thomas Antisell, M. D., Robert Reyburn, M. D., Adolphus S. Solomons, P. J. Murphy, M. D., Gideon S. Palmer, M. D., Mrs. Jane C. Hitz, Mrs. S. A. Martha Canfield, Mrs. Miranda Tullock, Mrs. Augustine Pollok, and Mrs. Jane L. Curtis, together with James C. Hall, M. D., Joseph K. Barnes, M. D., John Eaton, John Hitz, Joseph M. Toner, M. D., William G. Palmer, M. D., John S. Billings, M. D., Samuel C. Bussey, M. D., Henry A. Willard, Harvey Lindsley, M. D., A. Y. P. Garnett, M. D., Johnson Eliot, M. D., Cornelius Boyle, M. D., James S. Beale, M. D., Mrs. Gangewer, Mrs. Judge Snell, Miss Elizabeth Johnston, Mrs. Brodhead, Mrs. Leonard Whitney, Mrs. Isabella King, Mrs. Mary B. Clafin, Mrs. Greer, and Mrs. Sarah B. Willard, and such other persons as may hereafter become associated with them, have associated and do hereby associate themselves and their successors into a body corporate and politic, under the provisions of the act of Congress of the United States known as the "general incorporation act for the District of Columbia" (Revised Statutes of the United States for the District of Columbia, sections 545 to 552, both inclusive).

And they do hereby certify that such body corporate and politic shall be known in law as "The Washington Training School for Nurses."

(2) That the time for which the said society is organized is the period of twenty years.

(3) That the particular business and object of said society is to educate a body of skilled nurses, suitable for the needs of hospitals and capable of being intrusted with the care of the sick at their own homes, which education the society proposes to accomplish by lectures, recitations, and oral instruction in the rudiments of such branches of the sciences of medicine and hygiene as may be sufficient for the purpose and by hospital attendance.

(4) That the trustees for the first year of the existence of said society, who shall have the management of its affairs, shall be twelve in number, to wit: the twelve persons whose names are hereunto subscribed, this fourteenth day of December, A. D. 1877.

FLODOARDO HOWARD.	[SEAL.]
CHRIS. C. COX.	[SEAL.]
THOMAS ANTISELL.	[SEAL.]
ROBERT REYBURN.	[SEAL.]
A. S. SOLOMONS.	[SEAL.]
P. J. MURPHY.	[SEAL.]
G. S. PALMER.	[SEAL.]
JANE C. HITZ.	[SEAL.]
S. A. MARTHA CANFIELD.	[SEAL.]
MIRANDA TULLOCK.	[SEAL.]
AUGUSTINE POLLOK.	[SEAL.]
JANE L. CURTIS.	[SEAL.]

DISTRICT OF COLUMBIA,

County of Washington, to wit :

I, John Cruikshank, United States commissioner in and for the county of Washington aforesaid, in the District of Columbia, do hereby certify that Flodoardo Howard, Christopher C. Cox, Thomas Antisell, Robert Reyburn, Adolphus S. Solomons, P. J. Murphy, Gideon S. Palmer, Jane C. Hitz, S. A. Martha Canfield, Miranda Tullock, Augustine Pollok, and Jane L. Curtis, parties to a certain certificate bearing date on the 14th day of December, A. D. 1877, and hereto annexed, personally appeared before me in the county and District aforesaid, the said parties being personally well known to me to be the persons who executed the said certificate, and acknowledged the same to be their act and deed.

Given under my hand and official seal this 18th day of December, A. D. 1877, the names of Martha W. Galt, Timothy C. Lubey, and Mrs. Todd having been erased and the name of Mary B. Claflin interpolated before the execution of these presents.

JNO. CRUIKSHANK,

*United States Commissioner.**Indorsement.*

Certificate of incorporation of the Washington Training School for Nurses. Received for record December 19, 1877, and recorded in Liber "Acts of Incorporation, D. C., No. 2, folio 223." Examined by George F. Schayer, deputy recorder.

FORM OF APPLICATION.

This paper is to be filled out (in candidate's own handwriting) and sent to _____, President of the Washington Training School for Nurses, Washington, D. C.

1. Name in full and present address of candidate.
2. A single woman or widow?
3. Your present occupation or employment?
4. Age at last birthday and date and place of birth?
5. Height and weight?
6. Where educated?
7. Are you strong and healthy and have you always been so?
8. If a widow, have you children? How many? Their ages? How are they provided for?
9. Where (if any) was your last situation? How long were you in it?
10. The names in full and addresses of two persons to be referred to. State how long each has known you. If previously employed, one of these must be the last employer.

I declare the above statement to be correct.

Date _____, _____.

_____,
Candidate.

FORM OF NURSE'S CERTIFICATE AT GRADUATION.

THE WASHINGTON TRAINING SCHOOL FOR NURSES.

This is to certify that _____ has attended the course of instruction prescribed by the trustees of the society known as "The Washington Training School for Nurses," and that she has passed a satisfactory examination before its medical faculty.

Therefore the trustees hereby declare the said _____ qualified to perform the duties of a trained nurse.

In testimony whereof the officers of the society and the dean of the medical staff have affixed their names and the seal of the society, this — day of —, 188—.

_____,
Secretary.
_____,
President.
[SEAL.] _____,
Dean.

The nurse is required to give a satisfactory report of her work and to obtain the signature of the president of the society and the superintendent of the school once a year for the first five years hereafter.

The seal on the foregoing certificate may be described as follows: A circular band forms the outer part, bearing the words "Washington Training School for Nurses" above and "Incorporated Dec. 14, 1877" below. The centre is occupied by a white escutcheon or shield of plain shape, in the middle of which is a red Greek cross. The red cross and white shield are the insignia of the International Hospital and Field Service Society of Surgeons and Nurses, which originated during the Franco-German war of 1870-71. This association has been authoritatively recognized by all the governments of Europe and by the United States and has branches in every country, with the design of ameliorating the sufferings of the sick and wounded in times of war, training nurses and promoting hygienic laws and practices during peace, and mitigating the effects of pestilence, famine, fire, and other national calamities. The name of Miss Clara Barton, rendered so famous during the war of 1861-1865 as a nurse, has been associated with the organization of the American Association of the Red Cross.

PROCEEDINGS AT THE FIRST COMMENCEMENT, MAY 24, 1881.

ADDRESS OF J. M. TONER, M. D., PRESIDENT OF THE SCHOOL.

LADIES AND GENTLEMEN, FELLOW TRUSTEES, PROFESSORS, AND MEMBERS OF THE WASHINGTON TRAINING SCHOOL FOR NURSES: This assemblage of interested and influential citizens is certainly encouraging to the cause of the education of nurses, and especially gratifying to the society having the matter in charge, upon this the occasion of the first commencement for conferring the honors of the school upon its graduates. The public may expect and at all events this is deemed a fitting time to make a brief statement of the origin, purpose, and prospects of this enterprise. You are doubtless aware that the society known by the name of "The Washington Training School for Nurses" was formed in this city by the friends of the movement in the fall of 1877; a charter under the general incorporation act of the District was obtained on December 14 of that year. Its organization was soon after completed by the adoption of a constitution and by-laws for the government of the society and the election of trustees to manage its affairs. Provision was made for the admission of new members and for the support of the institution. The scope and sphere of a teaching faculty, with arrangements for hospital advantages and experience, and rules for the admission of pupils were considered, and, in a word, all the details for the inauguration and management of the enterprise were matured.

The organization, general management, and methods of instruction are closely patterned after those of similar institutions in practical operation in our own and other countries. It is true it was considered by some premature to begin when we did, as we had no endowment and were wholly without means. The society was small, and few or none of its members were wealthy, but all were zealous in the work. Great caution in incurring obligations had to be observed, but at the same time the society was resolved to do everything possible under the circumstances to found and support the school. One notable difference between the starting of this training school and that of most others is that they all had endowments to begin with sufficient to give

the nurses a home and support while in training or they were connected with endowed hospitals. We had none of these advantages. These important aids may, and we trust will, yet come to us. We mean at all events that our school, judged by its work, shall deserve encouragement. The usefulness of trained nurses and the necessity for them are every day becoming more and more apparent to the public, as they have long been to the medical profession. As no person is exempt from sickness, the liability to become dependent upon others for essential services in such affliction makes the necessity for the trained nurse evident. Reflecting persons, too, see that besides the humanity of the movement it at the same time opens a new, honorable, and remunerative avocation to woman for which she is eminently fitted. After a free exchange of views and full discussion of the whole question, it seemed to be a duty to found an institution in this city which should afford facilities for the proper education and training of nurses. A faculty of seven medical gentlemen was therefore elected from among our leading physicians, and systematic instruction in the art of nursing under the rules of the society began in October, 1878. Lectures are free to those admitted under the rules, and have been given continuously at stated times ever since, with the exception of the usual summer vacations.

As soon as the first course of instruction was announced to begin, a respectable class was formed. The society from the start has been solicitous that all pupils admitted should possess good physical, educational, and moral qualifications, to warrant efficiency in their calling and that the public may receive them into their homes with confidence. To insure these conditions applicants are subjected to a preliminary examination and are required to file satisfactory testimonials as to character. The third course of lectures and hospital instruction is this evening brought to a close. It may be asked, in view of what is said, why we have not a larger class of graduates. In explanation of this it is but just to state that we have been obliged to decline receiving pupils from a distance for want of a home, and indeed only those who could support themselves while studying have been accepted. It must also be borne in mind that the course of training requires two years for its completion. Bellevue Training School for Nurses, in New York, with its ample foundation and superior accommodations, has taken two of our earliest pupils, who, had they remained, would have been in the graduating class this year. A few who attended the first course of lectures have removed from the city, while the necessity of gaining a livelihood has caused others to lose courage and abandon the thought of qualifying for the duties and responsibilities of the nurse. The want of a home for the nurses is our pressing need, and has precluded us from receiving some very desirable pupils, because their circumstances were such as to oblige them for support to follow engrossing avocations which would limit the time and attention they could give to the necessary studies. The medical staff of the training school, by its earnest devotion to the interests of the institution, has given great satisfaction to the trustees.

With the hope of being able to realize funds to found a home, and thus place the institution on a more satisfactory basis, a loan exhibition was projected and held during February and March of this year. The exhibition was made attractive and was generously patronized by our best citizens, and from it the sum of nearly \$1,000 was realized. Important as is this money to us (though it is not one-tenth of the sum required), a far greater service was done the cause by popularizing the movement and making known to the whole community the purpose and necessities of the Washington Training School for Nurses. We may hope that the school has now an abiding place in the good will of the generous people of Washington City. The members of all the committees who took our tickets for the loan exhibition have been made members of the society, and we trust they may continue to act with us in the future as they have so magnanimously sustained us in the past. Thus of late the membership of our society has been greatly increased and its efficiency promoted. It is within the power of all to assist in this good work of educating nurses, as the annual dues of members of the society have been fixed at \$1. A benevolent work of this kind ought to have,

in this city, a list of over 3,000 contributing members. We invite all who sympathize with the movement, and who are able to spare this sum, to join the society. The training school is now one of the institutions of the city, and from its humane character and usefulness we feel justified in appealing to the public for its support by assisting us in placing it among our District public charities.

By the opening of the fourth course of lectures, in October next, we hope to be able to rent a building and have a comfortable house for the nurses, where their training may be systematically conducted under an experienced and educated head nurse, and where the lectures may be given by the medical faculty until a general hospital is established in which the training of nurses will, we trust, be made a legitimate part of its functions. As an encouragement to those who contemplate entering upon the calling of the "trained nurse," we can state that all our advanced pupils have found in this city full and remunerative employment even before they had finished their studies, and only consented to assume the responsibility under the most urgent appeal, but they have in every case given satisfaction alike to the sick and the physician in attendance. To those of our pupils who have completed the course of training and complied with all the requirements of the school and to-day leave us with the testimonial certificate of this institution, we bid God speed. May they carry with them into every sick room they enter hope and comfort, and so conduct themselves at all times as to shed lustre upon the calling of the trained nurse and upon their alma mater!

ADDRESS OF WILLIAM LEE, M. D., TO THE GRADUATING CLASS.

In sending you forth on your errand of mercy, with the authority of this school, now used for the first time, to set forth your capabilities and ask that others place confidence in you, it seems peculiarly fit that you should receive these last words within the walls of a church; within these walls where the story of the good Samaritan has been so often told and where the scenes in the life of the Healer of mankind are so dwelt upon; here, where many a poor soul has come, weary and heavy laden with the trials and bereavements which sickness and death have caused, to seek spiritual comfort and offer up grateful prayers for those who gave supporting sympathy. It cannot but impress you with the sacredness of your calling and give a deeper significance to the emblem of the red cross which is borne by the seal of your certificates.

I should have preferred that some other had been chosen from among my colleagues to better express to you their satisfaction at your present position and their interest in your future welfare; but I accept the compliment, if only for the purpose of expressing thus publicly how much I personally owe to the trained hospital nurse, and I feel that many a medical man will repeat my expressions to the echo from his own experience. We graduate in theory from our medical colleges, but we never graduate in practice; that is, to the end of our days we are learning new and practical points, and much that we get of early hospital experience comes from the nurse.

With my first recollections of hospital practice there mingle the black robed, white hooded forms of the Sisters of Charity, silently moving here and there through the quiet watches of the night, administering a draught to this sufferer and smoothing the pillow and aching head of that, always at hand with comfort when wanted. I almost looked upon them as beings from another world, sent specially to comfort us. Later, in hospital practice, I found the same self sacrifice, the same gentle and effective manners, and the same understanding of the needs and wants of the sick and wounded without this sombre uniform.

Yours is to be a calling requiring patience, perseverance, and endurance of much that will call forth all your faculties to their fullest extent, but with this you will find much to reward you that the doctor misses. He comes to the sick chamber, it may be to usher in another of the human race; that over, he is gone to return at intervals, ask a few questions, give his directions, and be off on his rounds, while you remain; and it is to you that the young mother confides her secret thoughts, her hopes, and

aspirations for the future of the little one that lies beside her, and if you have done your duty you have gained a life long friend. Many a woman looks back with hesitation as to who her doctor was in the hour of trial, but the name of her nurse comes up spontaneously to her lips. And so you go on taking an intimate part in all that makes sacred the lives of families, from the birth of the child until death comes after a life full of years and honor, and you cover all that is left of frail mortality with its last winding sheet.

One of the prejudices which you will have to encounter is that which gives to the nurse the position of an upper servant, and it depends upon yourselves more than upon your calling as to how far you will overcome that prejudice. Other occupations than yours have met with and have overcome this prejudice. Less than two centuries ago, in England, the clergy were entertained in the servants' hall, sent on errands, and expected to marry my lady's waiting maid, with no scruples as to the character she brought with her. See where they stand to-day — with the first in the land. In the same country, at the beginning of the last century, the physicians were first separated from the grocers. At the middle of the last century the surgeons were first separated from the barbers, and the Barber-Surgeons' Hall stands to-day in London to remind us of this. As a contrast, the world is even now discussing the action of a medical man who, after being specially honored by his sovereign, ignores that sovereign's expressed wish that he visit one of England's greatest statesmen on his death-bed, and refuses on the ground that his opinions will not be properly respected. So with you; here you will find perhaps a large class who will prefer a servant as a nurse, probably some trusted faithful colored mammy who has coddled them for years and who will too often, I am afraid, assist them to evade some of the most disagreeable of the doctor's prescriptions. You will find, moreover, some doctors who, until they know you better, will seriously and honestly doubt the propriety of giving nurses so much knowledge; and here is where you will have to exercise all your discretion — or better, perhaps, what the world calls policy — to know, not too much, but just enough for what the occasion demands, and to remember that you have no other judgment but the doctor's for the time being, and, further, that your services with him over you have no criticism for other ears. In pursuing such a course he will soon find that your knowledge of natural phenomena and symptoms of disease and your skill in care for the sick will relieve him of many a weary burden, and he will come to rely upon you accordingly. It is astonishing how sometimes the simplest things will excite alarm in the minds of not the uneducated alone, but rather of the uninitiated, and doctors have a good deal of their time taken up in answering such calls. I remember on one occasion, when in charge of a children's hospital, being summoned in great haste to find a child's head between the bars of a railing, which in play it had passed through the bars and then turned around. It was crying lustily and was almost blue in the face from its exertions. To turn the head straight and extricate it took almost less time than it does to tell it, but to my inquiry to the crowd of excited women that stood around as to why they had not done the same themselves, the reply was, "Sure, sir! the doctor always does that."

There are two pictures which, as nurses, you can contemplate; the one now fading away like our early daguerreotypes, but still distinct and visible, having for its type the Sairey Gamp of Dickens, the friend of that mysterious Mrs. Harris, doubts concerning the existence of whom caused the memorable rupture between Sairey and Betsy Prigg — Sairey Gamp, with her gig umbrella, her pattens, her rusty black gown, the worse for snuff, with shawl and bonnet to correspond, her red and swollen nose, her suspicious breath, and her desire to have the bottle left on the chimney piece where she could put her lips to it when so "disposed." Then Betsy's warning as to snuff — may we not take it as applicable to other things than snuff? You recollect it was called forth by Mrs. Prigg's anxiety for the welfare of the salad which Mrs. Gamp was preparing for supper, "and don't go a-dropping none of your snuff in it," said Mrs. Prigg. "In grael, barley water, apple tea, mutton broth and that, it don't signify; it stimulates a patient; but I don't relish it myself." "Why, Betsy Prigg," cried

Mrs. Gamp, "how can you talk so?" "Why, ain't your patients, wotever their disease is, always a-sneezin' their wery heads off along of your snuff," said Mrs. Prigg.

Keep that picture in some out of the way corner until it fades entirely from view, but bring the other into the light and sunshine to brighten the features of such women as Florence Nightingale and Dorothea Dix, who are depicted there as the living exemplars of the Old and New World. Time will not permit me to lay a feeble tribute at their feet. Contemplate for yourselves their lives and works, which speak volumes for them.

In the recent effort in your behalf, I mean the Art Loan Exhibition, you have received the generous encouragement of those from whom you will best appreciate it; see that you deserve it. So conduct yourselves that in the sick room your patients will bless you and your doctors feel that they have an assistant and friend; that in the hospital you can be trusted in an emergency; that in the days of pestilence the community in which you live shall feel that when friends and relatives are compelled to abandon the sick and fly to places of safety there is left behind a devoted band of nurses who will not falter, who will not hesitate, no matter what the end may be, but who will take their places by the bedside and give their dear ones of the best that can be had. We hope that your services may never be required for the carnage of war; but our experience of a few years ago is still too fresh to ignore it; it may yet be your lot to participate in similar scenes, and to play the part of Lady Clare when Marnion was brought to her:

In the lost battle borne down by the flying—
Where mingles war's rattle with groans of the dying—

and like her:

When pain and anguish wring the brow,—
A ministering angel thou.

REMARKS OF GENERAL EATON.

Hon. John Eaton, United States Commissioner of Education, said that the training of nurses was one manifestation of the humane feeling so prevalent in modern life and society; he contrasted this with the callous tone of ancient life and history; the present has grown by successive steps out of the past, and the progression is traceable in ecclesiastical as well as in civil history. In this great advance the growing subdivision of responsibility and labor has been the means of securing greater skill and better results. There was a time when the priest who offered the sacrifice at the altar was also physician, surgeon, watcher at the bedside, and apothecary; later the physician was also nurse, pharmacist, dentist, and surgeon. Each of these avocations has been separated from the rest and subjected to appropriate training. Increased skill in these pursuits has added immensely to human comfort, efficiency, and average longevity. The exigencies of modern progress, thought, and labor have rendered schools of this kind necessary for the preparation of the nurse in her various duties, and particularly as an effective aid to the physician in his duties. The speaker would by no means depreciate the worth of family devotion or the value of associated Christian effort for the relief of human suffering, but he wished to emphasize the use of the school as an instrument for the best culture in this direction. Neither public nor private effort so far has supplied the quality or kind of ability and devotion needed for this work, since the number of the dependent, by reason of infancy, old age, disease, or defective development nearly equals that of the producing and active members of the community. These schools for nurses should be economizers of private and organizers of public effort in this direction.

However small these beginnings, already the nurse commands the attention of the muse of poetry and biography. The Crimea furnished an ideal. It is not a mere coincidence that in 1860 Owen Meredith thus characterized the skilful nurse:

I fancy I trace
In some facts traced to her something more than the grace
Of an angel: I mean an acute, human mind,
Ingenuous, constructive, intelligent—

or that a little earlier the poet laureate in a single line pictured the patient's dependence upon the nurse:

He would listen for her coming, and regret her parting, step.

Our own Longfellow, foretelling her reward, sings:

A lady with a lamp shall stand
In the great history of the land.
A noble type of good,
Heroic womanhood.
Nor ever shall be wanting here
The palm, the lily, and the spear —
The symbols that of yore
Saint Filomena bore.

And there shall multiply biographies like those of Sister Dora, whose cultured and consecrated life carried healing to thousands stricken with disease and radiated light amid the shadows gathering upon the pathway of multitudes as they entered the dark valley.

REMARKS OF DR. LORING. •

Dr. Loring, Commissioner of Agriculture, paid a glowing tribute to the efforts of scientific medicine to relieve the ill; flesh is heir to, and warmly commended the Washington Training School for Nurses to the support and encouragement of the general public. He said that the existence of the training school for nurses placed Washington City in close relation with the best efforts of Massachusetts, and particularly the city of Boston, in its humane measures for the relief of suffering. He predicted for the nurses a career of honorable employment and usefulness.

APPENDIX C.

THE NEW YORK STATE SCHOOL FOR TRAINING NURSES.

EXTRACTS FROM AN ADDRESS TO THE GRADUATING CLASS, BY W. B. GARSIDE, M. D., MEDICAL DIRECTOR.

DELIVERED OCTOBER 12, 1880.

In the practice of nursing, the first great and underlying rule for you to observe is that of obedience. The care of the sick demands the attention of two persons, first, the physician; secondly, the nurse. The duties of the one are distinct from those of the other, and in order that the two may work harmoniously together for the benefit of the patient it is imperative that there should be but one head, and that the physician. No matter what your opinion may be of the attending physician — and you will be called upon to nurse under all kinds of doctors, the young and the old, the modest and the conceited, the genial and the arrogant, the amiable and the cross, the old school and the new — your duty, first, last, and always, is to obey implicitly his directions, even to the minutiae. The calomel and jalap of our old school friends must be given with the same courage and undeviating loyalty that you would exercise in administering attenuations of aconite or belladonna. The simple truth is that you as nurses have nothing whatever to do with medicines, except through the directions of the physician. The responsibility is his, not yours. If, peradventure, you have imbibed anywhere any idiotic craving for a little doctoring on your own account, I beg of you to drop it at once and forever, if you expect to become nurses worthy of the name. If

you are possessed of an insatiate longing for a favorite pill, or lotion, or salve, to carry around in your reticule and apply every time you get a chance, if such be your desire, you had better return your certificates to-night and try some other avocation.

* * * * *

I would rank, as the next matter of most importance, that of cleanliness, cleanliness absolute of your own person and clothing and of the patient and her surroundings. Recovery from sickness will always be more prompt and satisfactory where perfect purity and sweetness are the rule. It will demand a keen eye and no little industry, but it is your duty to follow up every item of foulness or taint until it is eradicated.

* * * * *

Akin to cleanliness are tidiness of dress and neatness of personal appearance. A slovenly nurse is an abomination that is not to be tolerated in the sick room. Abjure, I beg of you, bangs and frizzes and all architectural designs in hair; the commonest girl upon the street can do that better than you can. Strive for simplicity and plainness of dress and manners, relying for your adornment upon cleanliness and neatness, and, for your jewels, cultivating a bright and cheery face, a hopeful disposition, a tender voice, a skilful hand, and a loving heart. With the weaknesses and insipidities of fashion you have nothing to do.

* * * * *

Do not allow yourselves to have or to affect "the blues" while nursing the sick; they do not employ you to listen to mournful stories or sympathize with you in your trials and tribulations.

Try to achieve the art of moving about and doing things quietly and without fuss or pretence, and yet doing them quickly. Learn to be orderly in all the duties of the sick room. Be also prompt and punctual in every detail.

Anticipate the wants of the sick one. Do not sit reading or indulging in day dreams when you should be attending to your patient. Do not compel her to think of and ask for such things as you should think of for her, such, for instance, as the giving of medicines regularly and at the exact time, offering a sip of water, a morsel of food, bathing the face or hands, changing the pillow, regulating the bed covering, lowering a shade, closing or opening a window, quelling an unnecessary noise, and a thousand such little things as only a good nurse can think of and do.

If you do not love babies, learn to, and try to make it a genuine feeling. Do not, while you are fondling the little dears and saying sweet things to them, be caught looking in the mirror arranging your hair or dress.

If the mother sees you thus engaged she will lose all her faith in your affection for little ones, and, on the contrary, entertain a very positive opinion of your own vanity.

In this matter, as in others, while you are methodical, do not become mechanical. Put feeling and earnestness into your work, and there will be no danger that you will become a machine nurse, which is almost as bad as a careless one.

I trust you are well up in sick cookery, that you know how to prepare a variety of dainty dishes suitable for the sick, and also how to present them in a delicate and appetizing manner.

Keep your notebook and pencil ready to make a memorandum of such points as the physician wishes you to report to him at his next call; make a note, also, of any unusual symptom or occurrence that may happen in his absence. Do not trust to your memory, but put it down in exact words, and at the moment. After you have made your report to the doctor at his morning call and he has asked you such questions as he desires, leave the room for a time: the patient may wish to speak with her physician in confidence, perhaps about you. Give the doctor, also, a chance, as he is going away, to speak to you alone, so that he may have the opportunity of offering a suggestion or criticism if needed, and which is for your ear only. Do this regularly and without being spoken or beckoned to, so that the patient may not be alarmed.

Let me impress upon you the importance of religiously keeping the confidences of your patrons; whatever you may see or hear in any household is to be as a sealed book to you ever afterward. Do not convey from one family to another a knowled

of the different methods of living you may witness. The habits and customs of the one are as sacred as the other. You can scarcely injure yourself more than by becoming a gossip. The antique nurse was an adept in this particular, and retailed everywhere her budget of news with the same relish that she administered catnip tea or paregoric.

While professionally engaged you are not to criticise the medical treatment employed or to suggest changes of physicians.

Learn how to make an engagement—I mean a business one—in a plain, straightforward, and businesslike manner. Make no half-way engagements. Let there be no “ifs” or “ands” or misunderstandings, so far as plain, honest words can avoid it. And when you have made an engagement, whether it be a good one or a bad one, stick to it. Never be found faltering or wavering in your word, any more than you would do any other dishonest or disreputable thing. Have everything thoroughly understood at the outset, and when you have made a promise fulfil it promptly and to the letter. Answer punctually all business communications.

When you are employed, do not spend your time, which belongs to the patient, in visiting or receiving the visits of others. I have known a nurse to spend the first money obtained in buying a silk dress and devote much of her time afterwards to visiting other nurses and comparing notes as to what fashion it should be made up. I need not tell you such nurses are not successful.

The year that you have passed in this training school may have seemed long to you; but, although I believe your advantages have been good, a year, after all, is but a very short time to be thoroughly trained for any work. Most, if not all, other schools require a longer time than this. It is one thing to know what to do; it is quite another to know, by practice, when and how to do it skilfully; and this skill can only be attained by repeated efforts, under proper guidance. For this reason I would rather lengthen the course of training than shorten it.

The certificates you receive to-night simply place you upon the threshold of your profession, and you are only just now prepared to commence in living earnest the real study of your calling.

If you should live to be a hundred years old and practised nursing every day, you would still have something to learn. Said an old nurse to Miss Nightingale, under whom she had nursed in the Crimea, “It seems to me that the training is never finished; every day I learn something new or see that I ought to learn it.”

* * * * *

In the great majority of cases your faithful work will be rewarded with a heartfelt gratitude; but you will sometimes meet, I am sorry to say, with the reverse. You will occasionally, no matter how well you do, fail to arouse any appreciation of your work. Some people are ignorant, some are selfish, and some are both; and others, as my predecessor has said, “are queer, queer beyond comprehension.” Yes, queer without sense, reason, or justice. But you must learn to meet and bear these things with calmness and a forgiving spirit. Keep your temper, serenely and supremely; do your duty in all cases with the same faithfulness and tenderness that you would in the case of your best friend, and your reward will be ample.

A word about your health. Unless you are well and strong, how can you properly take care of the sick? Perhaps the most important thing for you to observe in the preservation of your strength is regularity—regularity so far as your duties will permit in all the details of your life—in eating and drinking, in sleeping and working, in rest and recreation. I know this is a difficult, sometimes an impossible thing to secure while nursing the sick; and yet I know at the same time that in many cases you nurses could systematize and order your living much better than you do. It will save you many a fret and tear, and prevent the waste of your energies in fitful, ill-timed, and unnecessarily repeated efforts. All sensible employers will realize the importance of your own health, and will acquiesce in all needful and proper regulations for its maintenance. To care for others you must care for yourself. **Let your food be plain and nutritious.** Avoid intemperate tea drinking. When your vigils are

protracted and your forces largely drawn upon, a cup of beef tea, a glass of milk, or a bowl of gruel will serve you much better than a stimulant or narcotic. See that you have a sweet breath. Dress loosely and keep your shoulders back. Avoid high-heeled shoes both in and out of the house. Go out every day in the open air for a good, swinging walk, and while so doing take deep inspirations of pure air. Especially during your periods of non-employment cultivate out-door exercises, and by so doing lay up, as it were, a stock of good health for emergencies. Strive to be cheery and happy. Cultivate the habit of reading aloud. This will be healthful for you and oftentimes enable you pleasantly to entertain a convalescing patient. If you need the help of a physician, attend to it at once; it is your duty to be as healthy and hearty as you can.

If, in your earlier experiences, you meet with discouragements and feel the need of a word of advice or instruction, come to our worthy superintendent or to any member of the medical staff, and I know they will be only too glad to help you.

APPENDIX D.

BELLEVUE HOSPITAL TRAINING SCHOOL FOR NURSES.

EXTRACTS FROM AN ADDRESS TO THE GRADUATING CLASS BY DR.
WM. M. POLK.

DELIVERED AT THE ANNUAL MEETING, DECEMBER 11, 1879.

Some ten years ago it was my good fortune to find myself one of the resident physicians in Bellevue Hospital. I found it a better place than I had been led to believe; one needing improvements, mind you, but yet possessing excellences that made it a place of great value to one who, like myself, came to study disease.

In spite of its advantages, however, there was a serious drawback, and that lay in the direction of the nursing of the sick.

Large hospitals are, consequently, the best places for the study of medicine. But even here there are difficulties that cannot be surmounted by the student physician unless he have such assistance as can be given by a good nurse. To know his cases, he must know all that transpires during their progress. Could he be with each at all times, no doubt it would be best, but that is an impossibility. Of necessity, then, he is dependent upon the immediate attendant for information. The eyes, ears, and touch of that individual stand for his own, in his absence. If she be intelligent, possessed of a certain amount of knowledge, but, above all, faithful, her observations are trustworthy and her report can be accepted. The physician takes such reports to fill in the gaps in his own more elaborate and thorough observations, but the two are essential to the complete record of his cases. With such aid, it can be seen how rapidly and easily he gathers a number of records, almost photographic in accuracy, whose problems he is able to work out at his leisure.

Now it seems to me that any institution supplying nurses capable of rendering services of such nature is entitled to be considered a positive force in medical advance, and, I am happy to say, the training school is so considered and recognized by those of us who, as attending physicians to Bellevue Hospital, have had occasion to test the efficiency of its students and graduates. I am even more gratified to be able to add that the same view is steadily spreading itself among the profession at large.

There is another view, however, to take of the good accomplished by your school; one not less interesting to the physician, but certainly about which the patient is more apt to concern himself. I refer to the greater facility, and I believe certainty, with which a case of illness can be conducted to a favorable termination through

the aid which can be derived from the best of its graduates. The invalid or doctor who has once experienced the aid and comfort of a good trained nurse will be loath to be without one in any time of severe illness. On your account as individuals it affords me pleasure to testify to this fact, as it is the one which will do most to secure to you the good will and support of that public upon which, in future, you must rely for a livelihood.

You have been fortunate in having Bellevue Hospital as the field of your labors, for in its extensive wards you have been brought in contact with a great variety of medical and surgical diseases. You have had the supervision and direction of an able corps of resident physicians, whose eager and thorough pursuit of their studies has stimulated you to constant exertion. You have been living in the foremost medical school in this country, as is shown by the large number of students (nearly 1,500) who annually flock to its amphitheatre. Your opportunities having been great, it is all the more important that you realize how heavy are your responsibilities.

RULES FOR THE GOVERNMENT OF NURSES.

RULES FOR ADMISSION OF PUPILS.

The committee of the Training School for Nurses has made arrangements with the authorities of Bellevue Hospital for giving two years of training to women desirous of becoming professional nurses.

Those wishing to obtain this course of instruction must apply to the superintendent of the Training School, 426 East Twenty-sixth street, New York, upon whose approval they will be received into the school for one month on probation. The most acceptable age for candidates is from twenty-five to thirty-five years. The applicants should send with their answers to the paper of questions a letter from a clergyman, testifying to their good moral character, and one from a physician, stating that they are in sound health. Applicants are received at any time during the year when there is a vacancy, fall and winter months preferred. During the month of trial, and previous to obtaining a position in the school, the applicant will be examined in reading, penmanship, simple arithmetic, and English dictation.

The superintendent has full power to decide as to their fitness for the work and the propriety of retaining or dismissing them at the end of the month of trial. She can also, with the approval of the committee, discharge them at any time in case of misconduct or inefficiency.

During the month of probation the pupils are boarded and lodged at the expense of the school, but receive no other compensation. Those who prove satisfactory will be accepted as pupil nurses, after signing an agreement to remain two years and to obey the rules of the school and hospital.

They will reside in the home and serve for the first year as assistants in the wards of Bellevue; the second year they will be expected to perform any duty assigned them by the superintendent, either to act as nurses in the hospital or to be sent to private cases among the rich or poor.

The pay for the first year is \$9 a month; for the second year, \$15 a month. This sum is allowed for the dress, text books, and other personal expenses of the nurse, and is in no wise intended as wages, it being considered that the education given is a full equivalent for their services. They are required after the month of probation, when on duty, to wear the dress prescribed by the institution, which is of blue and white seersucker, simply made, white apron and cap, and linen collar and cuffs.

The day nurses are on duty from 8 A. M. to 8 P. M., with an hour off for dinner and additional time for exercise or rest. They are also often given an afternoon during the week, and have a right to the half of Sunday. A vacation of two weeks is allowed each year. It is not proposed to place nurses on night duty until they have been in the school three months.

As the institution is unsectarian there are no religious services connected with it, except evening prayers, and all nurses are expected to attend the place of worship they prefer once on Sunday.

In sickness all pupils will be cared for gratuitously.

Course of training.

The instruction includes:

1. The dressing of blisters, burns, sores, and wounds; the application of fomentations, poultices, cups, and leeches.
2. The administration of enemata and use of catheter.
3. The management of appliances for uterine complaints.
4. The best method of friction to the body and extremities.
5. The management of helpless patients; making beds, moving, changing; giving baths in bed; preventing and dressing bed-sores, and managing positions.
6. Bandaging, making bandages and rollers, lining of splints.
7. The preparing, cooking, and serving of delicacies for the sick.

They will also be given instruction in the best practical methods of supplying fresh air, warming and ventilating sickrooms in a proper manner, and are taught to take care of rooms and wards; to keep all utensils perfectly clean and disinfected; to make accurate observations and reports to the physician of the state of the secretions, expectoration, pulse, skin, appetite, temperature of the body, intelligence (as delirium or stupor), breathing, sleep, condition of wounds, eruptions, formation of matter, effect of diet or of stimulants or of medicines; and to learn the management of convalescents.

The teaching will be given by visiting and resident physicians and surgeons at the bedside of the patients, and by the superintendent, assistant superintendent, and head nurses. Lectures, recitations, and demonstrations will take place from time to time, and examinations at stated periods.

When the full term of two years is ended, the nurses thus trained will be at liberty to choose their own field of labor, whether in hospitals, in private families, or in district nursing among the poor. On leaving the school they will, on passing an examination, each receive a diploma signed by the examining board and by a committee of the board of managers.

RULES FOR THE NURSES' HOME.

RULE 1. The hour for rising is 6.30 A. M. Before leaving the home for the hospital, each nurse must make her bed, dust and arrange her room and closet, leaving them in good order, so that they may be ready for inspection by visitors at any time during the day.

The hour for closing the home is 10 P. M. All inmates of the home are expected to be within doors at that hour unless they have special permission to be absent. The lights will be put out in the parlor and halls and nurses must retire to their rooms.

The gas must be turned down when a nurse leaves the room.

RULE 2. The hours for meals are: Breakfast, from 7.15 to 7.45; first dinner, 12.30; second dinner, 1.30; first supper, 7; second supper, from 8.10 to 8.45. Nurses must not linger in the dining room after meals. No food is provided for the nurses out of the appointed time, except when ordered by the matron at the request of the superintendent. Nurses are not to go into the kitchen, nor give orders to the cook; all such matters to be referred to the matron. No visitors are to be invited to meals or to spend the night in the home. The parlor is for the reception of visitors, but a nurse can invite ladies to her room if agreeable to her room-mate.

RULE 3. Conditions upon which the nurses can have the privileges of the laundry: Eighteen pieces, well marked, and one dress are allowed each person per week. No laces, muslins, or white muslin skirts will be received. Each must be provided with a clothesbag, marked, in which clothes are to be put and placed by the elevator on each floor early Monday morning, or late Sunday evening, if convenient. A book with list

of clothes, dated, must be sent in every week, with name on the outside of book. On Thursdays the dresses and skirts must be taken, but no clothes from the boxes till Saturday, when all must verify their lists before taking their clothes away.

Any one disregarding these regulations will forfeit the privilege of having clothes washed in the home.

RULE 4. The nurses are under the authority of the superintendent in the home as well as in the hospital. When taken off duty on account of sickness they must not leave the home nor return to their hospital duties without the direction of the superintendent; neither can they at any time go to the hospital without permission, except at the regular hours. Nurses are not permitted to receive calls in the wards of the hospital from their friends or other nurses.

RULE 5. A physician will be selected by the superintendent to attend the nurses in sickness. They will not be allowed to consult any other medical man without permission from the superintendent, nor to obtain medicine from the hospital drug store without the order of the home doctor or that of the superintendent.

RULE 6. The letter box will be opened five times a day by the matron and the letters placed in the post office boxes. No one may open the letter box or receive the letters from the postman or take any letters but her own from the boxes.

It is expected that the nurses will avail themselves of the time given them on Sunday to attend some place of worship, unless they have very sufficient reasons to the contrary. Evening prayers will be in the matron's room, immediately after the first supper, at which all are earnestly invited to be present.

Punctuality, personal neatness, general order, a gentle voice and manner, and a patient temper are essentials in a good nurse. Let the nurse cultivate these qualities, together with a Christian, loving spirit. "Bear ye one another's burdens, and so fulfil the law of Christ," remembering that "Love is the fulfilment of the law."

RULES FOR NURSES GOING OUT TO PRIVATE SERVICE.

RULE 1. The nurses are to attend the sick, both rich and poor, at hospitals or private houses, as the committee or lady superintendent may appoint.

RULE 2. When sent from the home to attend a patient, they receive their instructions from the lady superintendent and do not leave the case without communicating with her; this they can do by letter at any time.

RULE 3. While on duty in the home, at the hospital, or in private houses, the regulations of the school with regard to dress are to be observed by the nurse.

RULE 4. A nurse is always to bring back with her a certificate of conduct and efficiency from the family of her patient or from the medical attendant.

It is expected that nurses will bear in mind the importance of the situation they have undertaken, and will evince, at all times, the self-denial, forbearance, gentleness, and good temper so essential in their attendance on the sick and also to their character as Christian nurses. They are to take the whole charge of the sickroom, doing everything that is requisite in it when called upon to do so. When nursing in families where there are no servants, if their attention be not of necessity wholly devoted to their patient, they are expected to make themselves generally useful. They are to be careful not to increase the expense of the family in any way. They are also most earnestly charged to hold sacred the knowledge which, to a certain extent, they must obtain of the private affairs of such households or individuals as they may attend.

Communications from or on the subject of nurses may be made personally or by letter to the lady superintendent, Nurses' Home, 314 East Twenty-sixth street, New York.



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CIRCULARS OF INFORMATION

OF THE

BUREAU OF EDUCATION.

No. 2-1882.

PROCEEDINGS OF THE DEPARTMENT OF SUPERINTENDENCE OF
THE NATIONAL EDUCATIONAL ASSOCIATION AT ITS
MEETING AT WASHINGTON, MARCH 21-23, 1882.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1882.

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LETTER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, June 10, 1882.

SIR: I have the honor to present the following papers for publication. The topics are specially pertinent to the present condition of educational discussions. The essays and papers are by some of our most thoughtful and able educators. Appearing in this form they have the advantage of carrying with them the opinions and comments of other experts. Their present publication will greatly relieve demands upon the Office.

I have the honor to be, very respectfully, your obedient servant,
JOHN EATON,
Commissioner.

The Hon. SECRETARY OF THE INTERIOR.

Publication approved.

H. M. TELLER,
Secretary.

NATIONAL EDUCATIONAL ASSOCIATION.

DEPARTMENT OF SUPERINTENDENCE.

MEMBERS IN ATTENDANCE.

SUPERINTENDENTS.

Hon. John W. Akers, State superintendent of public instruction of Iowa, Des Moines.

Hon. H. Clay Armstrong, State superintendent of education of Alabama, Montgomery.

Hon. J. W. Bartch, superintendent of schools, Shenandoah, Pa.

Hon. John M. Bloss, State superintendent of public instruction of Indiana, Indianapolis.

Hon. B. L. Butcher, State superintendent of free schools of West Virginia, Wheeling.

Hon. R. L. Carne, superintendent of schools, Alexandria, Va.

Hon. Geo. F. T. Cook, superintendent of colored schools, Washington, D. C.

Hon. Varnum B. Cochran, State superintendent of public instruction of Michigan, Lansing.

Hon. V. G. Curtis, superintendent of schools, Corry, Pa.

Hon. U. W. Cutts, superintendent of schools, Orange, N. J.

Hon. D. F. De Wolf, State commissioner of common schools of Ohio, Columbus.

Hon. J. W. Dickinson, secretary of State board of education of Massachusetts, Boston.

Hon. John A. Dix, superintendent of schools, Elizabeth, N. J.

Hon. G. T. Fletcher, superintendent of schools, Augusta, Me.

Hon. Aaron Gove, superintendent of schools, Denver, Colo.

Hon. George Howland, superintendent of schools, Chicago, Ill.

Hon. Henry Houck, deputy State superintendent of public instruction of Pennsylvania, Harrisburg.

Hon. H. S. Jones, superintendent of schools, Erie, Pa.

Hon. Wm. A. Lindsey, deputy State superintendent of public instruction of Pennsylvania, Harrisburg.

Hon. A. P. Marble, superintendent of schools, Worcester, Mass.

Hon. M. A. Newell, State superintendent of public instruction of Maryland, Baltimore.

Hon. J. A. Nichols, superintendent of schools, Yonkers, N. Y.

Hon. Birdsey G. Northrop, secretary of State board of education of Connecticut, Hartford.

Hon. Gustavus J. Orr, State school commissioner of Georgia, Atlanta.

Hon. John C. Scarborough, State superintendent of public instruction of North Carolina, Raleigh.

Hon. Wm. H. Shelby, superintendent of schools, York, Pa.

Hon. Henry E. Shepherd, superintendent of schools, Baltimore, Md.

Hon. Thos. B. Stockwell, State commissioner of public schools of Rhode Island, Providence.

Hon. Hugh S. Thompson, State superintendent of education of South Carolina, Columbia.

Prof. F. N. Thorpe, superintendent of schools, North East, Pa.

Hon. J. Ormond Wilson, superintendent of schools for the District of Columbia, Washington.

Hon. Henry A. Wise, assistant superintendent of schools, Baltimore, Md.

Hon. Allen Wright, superintendent of schools of the Choctaw Nation, Indian Territory.

MISCELLANEOUS.

C. W. Bardeen, editor School Bulletin, Syracuse, N. Y.

Dr. Henry Barnard, Hartford, Conn.

Dr. J. S. Billings, Assistant Surgeon General United States Army Washington, D. C.

Jas. H. Blodgett, Rockford, Ill.

Prof. J. P. K. Bryan, Charleston, S. C.

Rev. A. W. Burr, principal of Hallowell Classical Academy, Hallowell, Me.

J. E. Bushnell, New Haven, Conn.

Rev. J. W. Chickering, Washington, D. C.

Adolf Cluss, architect, Washington, D. C.

Dr. Cochran, Staunton, N. J.

Hon. W. A. Courtenay, mayor, Charleston, S. C.

Hon. J. L. M. Curry, LL. D., general agent of the Peabody education fund, Richmond, Va.

Hon. Edward Danforth, Elmira, N. Y.

Hon. J. Dent, commissioner of the District of Columbia, Washington, D. C.

Wm. C. Dodge, esq., member of school board, Washington, D. C.

Rev. S. Domer, Washington, D. C.

Mrs. Sarah B. Earle, Worcester, Mass.

Gen. John Eaton, United States Commissioner of Education, Washington, D. C.

- Prof. J. Enthoffer, Washington, D. C.
William H. Gardiner, esq., Portsmouth, N. H.
Dr. W. W. Godding, Superintendent of the Government Hospital for the Insane, Washington, D. C.
Dr. J. M. Gregory, Urbana, Ill.
Prof. G. Stanley Hall, North Somerville, Mass.
Hon. Dexter A. Hawkins, New York.
Hon. J. W. Hoyt, governor of Wyoming, Cheyenne.
Rev. Sheldon Jackson, D. D., New York.
Geo. T. Littlefield, esq., Boston, Mass.
B. G. Lovejoy, esq., member of the school board, Washington, D. C.
H. G. McCall, Montgomery, Ala.
Rev. A. D. Mayo, D. D., Boston, Mass.
Gen. R. D. Mussey, Washington, D. C.
Prof. C. C. Painter, Fiske University, Nashville, Tenn.
Rev. W. W. Patton, president of Howard University, Washington, D. C.
Hon. J. D. Philbrick, LL. D., Boston, Mass.
Mrs. Louise Pollock, principal of the National Kindergarten, Washington, D. C.
Miss Susie Pollock, Fröbel Institute, Washington, D. C.
Rev. A. T. Porter, D. D., Charleston, S. C.
Rev. J. E. Rankin, D. D., Washington, D. C.
Zalmon Richards, Washington, D. C.
J. W. Schermerhorn, New York.
W. E. Sheldon, editor Primary Teacher, Boston, Mass.
Dr. Charles Smart, United States Army, Washington, D. C.
Hon. J. H. Smart, Indianapolis, Ind.
Justin H. Smith, agent for Scribner & Co., New York.
J. T. Smith, Warwick, R. I.
Lyndon A. Smith, esq., Norwich, Vt.
Prof. H. C. Spencer, principal of the Spencerian Business College, Washington, D. C.
Gen. E. Whittlesey, secretary of Board of Indian Commissioners, Washington, D. C.
J. M. Wilson, Washington, D. C.

PRELIMINARY MEETING — TUESDAY EVENING.

WASHINGTON, *March 21, 1882.*

A preliminary meeting of the members of the Department of Superintendence was held in the red parlor of the Ebbitt House at 8 P. M., for the purpose of perfecting arrangements for the sessions which were to be held on the subsequent days, pursuant to a call issued March 1, 1882.

The president, Hon. W. H. Ruffner, was absent. On motion of Mr. NEWELL, of Maryland, Hon. T. B. Stockwell, State commissioner of schools of Rhode Island, was chosen president pro tempore. The secretary, Hon. H. S. Jones, was in attendance; and an arrangement was made by which the proceedings should be reported and prepared for publication by Mr. J. E. Rockwell, stenographer.

Mr. WILSON offered the following resolution; which was adopted:

Resolved, That an executive committee consisting of three members of this department, whose duty it shall be to arrange and report the programme of papers and business for this meeting, be appointed by the president pro tempore.

The Chair named as this committee Messrs. Wilson, of Washington, Orr, of Georgia, and Howland, of Chicago.

General EATON said that the question of national aid to education now before Congress was, he believed, one which should have the special attention of this association, and, while favoring no particular bill, he hoped that members would do all in their power to bring about some suitable legislation during the present session.

Rev. A. D. MAYO spoke of the necessity of this aid in the South, owing to its impoverished condition. Dr. ORR referred to the need of immediate help in his State (Georgia) because of the vast amount of illiteracy there. Mr. ARMSTRONG, of Alabama, spoke of the amount expended in Alabama for schools (\$410,000) during the last year. The people are anxious to do everything possible, but need help.

Mr. NORTHROP made pertinent remarks on this subject; and was followed by Colonel THOMPSON, of South Carolina, who spoke of the development of the public school system in the State which he represented.

Professor PAINTER, of Nashville, read a memorial which he had prepared regarding national aid; and Mayor COURTENAY, of Charleston, made some statements in regard to the taxes imposed for the support of schools in his city. He concluded by saying that it now took four years to put up a school-house there, and that three more buildings were wanted at once.

On motion of General EATON, the executive committee was instructed "to select a committee on the subject of national aid, to prepare resolutions and present this matter in behalf of this association before the joint meeting of the congressional committees on education and labor."

The subject of national aid was further discussed by Messrs. NORTHROP, FLETCHER, and MAYO; and a motion made by Mr. SHELDON was passed, providing that the committee be requested to consider the distribution of the moneys with a view to determining in what way it may best be done through the existing school officers of each State.

The department then adjourned to meet in the lecture room of the Congregational Church on the following morning.

FIRST SESSION—WEDNESDAY MORNING.

WASHINGTON, *March 22, 1882.*

The meeting was called to order by Mr. STOCKWELL, president pro tempore, and was opened by prayer by Rev. J. E. RANKIN, D. D., of Washington.

Mr. WILSON, from the executive committee, reported the following order of exercises for the morning session:

The information necessary to determine the merits of the heating and ventilation of a school building, by John S. Billings, surgeon, United States Army.

On the chemical examination of air as applied to questions of ventilation, by Captain and Assistant Surgeon Charles Smart, United States Army.

Concerning obstacles in the way of better primary education, by Hon. H. S. Jones, superintendent of schools, Erie, Pa.

City systems, by Hon. John D. Philbrick, LL. D.

Chairs of pedagogy in our institutions for superior instruction, by Prof. G. Stanley Hall, Cambridge, Mass.

The attention of the members of the department was first called to the presentation of the following paper by JOHN S. BILLINGS, surgeon, United States Army:

THE INFORMATION NECESSARY TO DETERMINE THE MERITS OF THE HEATING AND VENTILATION OF A SCHOOL BUILDING.

The question as to the best means of heating and ventilating school buildings is one of great interest, and one which not infrequently comes before me for consideration in the form of an inquiry as to whether the heating and ventilating arrangements of some given building are satisfactory. Unfortunately, when I am questioned about it, it is usually after the fashion in which the soothsayers were questioned about Nebuchadnezzar's dream. You will remember that they were asked not only to furnish an interpretation of the dream, but to describe the dream itself; and in like manner I am often asked for an opinion as to the sufficiency of the ventilation of a building without being furnished with the necessary data upon which alone an intelligent opinion can be based. I must confess that there seems to be no special difficulty in obtaining opinions under such circumstances, as most people seem to be quite ready to answer as to whether a given school, or all the schools of a given place, are well heated and ventilated or otherwise; and I have no doubt that most of those present have views more or less definite as to the

relative value of certain so-called systems of heating and ventilation which they have seen in action. While I do not wish in the smallest degree to express doubts as to the value of these opinions to those holding them, I must say to you that for scientific purposes and for the satisfaction of other people they are unfortunately not of much use. What is wanted for scientific purposes is, not the opinions, but the facts upon which the opinions are based; and the purpose of my remarks is to indicate as briefly and clearly as possible some of the facts which it is most important to ascertain to enable one to judge of the merits of the ventilation of a given place. These facts may be divided into two classes: first, those which may be ascertained by examining the building itself while the school is in operation; and, second, those which cannot be known by a single observation, but only from a series of them; in other words, from records. To the first class belong location, exposure, plan, dimensions, materials, workmanship, air space, air supply, air distribution, number of persons, necessary and unnecessary contaminations, character and sufficiency of heating apparatus; to the second belong records of the results on the health of pupils and teachers, records of temperature, and records of cost.

Let us consider each of these points briefly.

The location and exposure of a school building are of importance in connection with its heating and ventilation, partly in relation to the purity of its air supply and partly because the winds have a much greater effect upon the movements of the air *within* a building than is ordinarily supposed; and this is especially the case in a building constructed of ordinary brick and mortar, with common plastered walls, not painted, papered, or calcimined, which is the case with our ordinary school buildings. In a building of this kind, which is freely exposed to a strong wind, there is a very decided movement of air through the windward side, and a corresponding tendency to an exhaust through the opposite side. This tendency is sometimes so strong that the openings on the leeward side which were intended for inlets of fresh air to the heating surfaces have their action reversed and will be found acting as outlets, in which case it is by no means impossible that what were intended to be the foul-air flues for the building will be found to be acting as inlets, as I have actually seen the case in a school building I examined.

It is necessary that the location and exposure should be distinctly noted, including the altitude of the site, the distance of surrounding buildings, the prevailing winds, &c. The vicinity of marshes, pools of stagnant water, and buildings in which trades and manufactures liable to give forth offensive emanations are situated, should also be noted. The plan of the lot should be given, and upon it should be located the building, giving dimensions, so as to indicate distinctly the amount of ground not covered by the building and the location of drains, sewers, and cesspools outside the building ^{and} it. The next

thing is to prepare copies of the floor plans of the building, with a section showing the height of the several stories. It makes little difference how rough these plans may be, provided the dimensions are distinctly indicated upon them, with the location of all doors, windows, heating apparatus, flues, and registers for both fresh and foul air. The dimensions of all windows, doors, and flues should be noted; also the existence of transoms over the doors. The amount of clear opening in the registers for each flue should be indicated, together with the number of desks and the number of children actually in the room at the time of making the observation. The length of time which these children have been in the room since the last recess should also be noted. The temperature of the outer air and that of the room near the floor and near the ceiling, within two feet of the inner wall and in the same position relative to the outer wall, should be taken; also the temperature of the incoming and outgoing air. This is necessary to enable one to judge of the distribution of heat in a room, and to a certain extent is a very good index of the distribution of the fresh air. It is also desirable that the amount of moisture in the air as determined by the hygrometer should be observed and recorded, similar records being taken of the amount of moisture in the external air. The next step is to ascertain the amount of air which is actually entering and leaving the room by the special openings and flues provided for that purpose. This is to be done by means of an instrument called an anemometer, one of which I have on the table before me. This is a delicate and fairly accurate instrument, made by Casella, of London. It will indicate a current of air having so low a velocity as one foot per second, and registers by a series of dials, similar to those on a gas meter, the number of feet of air which have passed through the wheel. The cost of this instrument is about \$25, and I would strongly recommend that in cities where there are several schools the general superintendent, or other inspecting officer, should be provided with one of these instruments and should accustom himself to note the amount of work which the ventilating apparatus in the several buildings are actually performing. In making such observations it will be found that there is a great difference in the amount of air passing through the several flues, dependent on the direction and force of the wind, and also to a great extent as to whether the doors, and the transoms over the doors, of the school rooms be opened or closed. In a school building of several stories, where the doors open into a large central hall containing a staircase, which is a common plan of construction, it will usually be found that a large proportion of the change of the air in the school rooms is effected through the doors and transoms, and outward and inward currents will be found in the doorways near the floors and at the top of the openings.

It would be a great error to suppose that only the amount of fresh air indicated by the anemometer in the flues provided for that purpose is actually entering the room. Were this the case, a great majority of

school rooms would soon become uninhabitable. As a matter of fact, a very large amount of fresh air enters directly through the walls, another part around the windows and through cracks at the junction of the floor and wall, and a third source of supply comes from the central hall, as just indicated.

Although this anemometer is a comparatively simple instrument, there are, nevertheless, one or two precautions necessary in its use, to which it may be well to call attention. In the first place, the accuracy of the instrument should be carefully tested, not only when it is first received, but at intervals subsequently. The reason for this is that the plates of the little windmill are very delicate and easily bent from their proper position, and a very small displacement has a marked effect upon the registration of the instrument. The usual mode of testing these instruments is to swing them in a circle at the extremity of a bar of a known length and note the registration. A simpler method, however, and one by which equal accuracy may be obtained, is to walk rapidly a measured distance, say 200 feet, in a covered space, where there are no currents of air, holding the instrument at arm's-length above the head, or, better, attached to a short rod, with the plane of the wheel perpendicular to the direction of the movement. This mode of carrying the anemometer for this test is necessary, since if the instrument be held in front of the breast, and a foot or two away from it, it will be found that it will register much less than it should do, owing to the obstruction of the free passage of the air through it and the creation of an eddy. It is difficult to ascertain precisely the amount of air flowing through a register by the use of the anemometer, if the instrument be merely held in front of the register. The amount of air passing through the different parts of the register varies, and the irregular ornamental iron-work produces currents and eddies which make it very difficult to obtain a satisfactory average. The best way is to cover the entire register with a sort of truncated cone, made of light board or pasteboard, freely open at both ends, and having the large end fitting close against the wall over the register, the smaller end having, for convenience of calculation, an area of one square foot. This cone should be from one foot to 18 inches high.

I must warn you against the error of supposing that all the air coming from the top of a heating apparatus placed in the room itself and connected with the outer air is to be counted as fresh air supply. In all cases a very considerable amount of this air is derived from the room itself, and rolls up along the side of the heating apparatus, be it ventilating stove, steam coil, or what not, and aids in forming the current which the anemometer shows to exist over the radiator. In all such cases the true amount of air which is entering from without can be found by testing the current with the flue from the external air closed and then open, and noting the difference.

Nor can the amount of air entering at the inlet flues or found to be

passing out of the outlets be taken as an absolute indication of the amount and character of the ventilation of a room, for it is possible to pass a very large amount of air through a room without really ventilating it, and this will always be the case where the air is admitted at a high temperature and allowed to escape through openings at or near the top of the room. It is necessary therefore to obtain some information as to the distribution of the fresh incoming air as well as its quantity. This information is to be obtained partly by the use of visible vapors, or light substances which will indicate the direction and force of the air currents, and partly by chemical analysis.

Of the various means of showing the direction of air currents one of the simplest and easiest of application is by the fumes of freshly generated muriate of ammonia produced by bringing the vapors of the common liquor ammonia of the shops in contact with the vapor of hydrochloric or muriatic acid. These fumes can be inhaled without discomfort or injury; in fact, they are sometimes used for the treatment of chronic inflammatory troubles of the air passages. The cost of their production is very small and they can be generated in any amount desired. Even these, however, give but a very partial idea of the distribution of the air within a room. This can only be ascertained by taking samples of the air at different points in the room and subjecting them to chemical examination. This examination is usually confined to testing the amount of carbonic acid present, and the methods of doing this will be demonstrated before you by Dr. Smart. I wish only to emphasize here the fact that carbonic acid gas in the proportions in which it is found in the worst-ventilated school rooms is not in itself poisonous, offensive, or harmful. The really dangerous and offensive impurities are the organic matters thrown off in respiration, and as these increase the carbonic acid increases in a like proportion. Now, the testing for these organic matters, in a quantitative point of view, is a very difficult and delicate process, whereas the examination for carbonic acid is, as you will see, comparatively simple; hence, the chemical test of the quality of the air is made by the analysis for carbonic acid, which is taken as an index for the really harmful impurities existing. Having obtained these data with regard to air space and air supply, and what may be called the necessary contaminations with which the ventilation system has to deal, that is to say, the number of persons who vitiate the air, the next point to be attended to is what may be termed the unnecessary contaminations of the air, due to defects in the house drainage, to emanations from wet and soiled outer wraps and clothing, to emanations from the soil, and to noxious and infectious gases from the heating apparatus.

If the water closets are placed in the basement of the school building, in a room having a cemented floor, for purposes of cleansing, it is very common to have this floor slightly sloped towards one point and at that point to place an opening into the sewer so that the whole floor and

closets may be washed by means of a hose, and the resulting water readily gotten rid of. This opening to the sewer is usually guarded by means of what is called a bell trap, which is, however, in nine cases out of ten found to be totally ineffective. In two out of three cases in which I have recently examined these arrangements in Washington schools, I found a strong current of air from the sewer passing up from this so-called trap into the basement, from which it passed freely up the staircase into the main hall, and became a part of the source of supply for the school rooms, as I have already explained.

If the closets are placed within the building, it should be noted whether the soil pipe is properly ventilated, that is to say, whether the pipe into which the closets discharge is continued up through the roof and left freely open at the top, and has also a fresh air opening into it from the outside of the building. If the closets be outside of the building the point of discharge of their ventilation pipe should be noted, as to whether it is above or below the level of the windows of the upper rooms in the main school building. A very frequent source of unnecessary contamination of the air supply of a school building is connected with the heating apparatus. This may occur in two ways: first, as the heating apparatus is usually placed in the basement, which communicates freely by stairways with the upper hall, any checking of the draft in the fire causing escape of gases from the furnace into the basement will contaminate its central air supply. This is liable to occur, whatever may be the form of heating apparatus. The second mode of contamination is by the air of the basement, rendered impure in various ways, passing into the fresh air ducts through cracks, leaks, &c. This is especially liable to occur in systems of heating by hot air furnaces, and the fittings of these should be carefully examined.

Into the merits of the various systems of heating employed I do not propose to enter; I merely wish to call attention here to the fact that the great deficiencies in them all are the want of sufficient heating surface and the want of some means of control by which a free supply of air may be permitted to enter without having it all pass over the heating surface. As a rule, in all school buildings warmed by the so-called methods of indirect radiation, that is, by hot-air furnaces or by steam coils placed in the basement, the air enters the room at a comparatively high temperature, too high, in fact, for either comfort or health. The only way of controlling the temperature of the room in the way of reduction is to partially or entirely shut off the air supply by closing the register. No heating or ventilating apparatus which operates in this manner can be considered satisfactory. In all cases it should be possible by the operation of a valve to permit more or less cold air to mingle with the heated air, and this should be done in such a way that the temperature of the air admitted into the room can be regulated without at all diminishing its quantity.

Thus far I have been speaking simply of those matters connected

with a building which can be noted by examination upon a particular day, or, at the most, upon two or three successive days. This, however, will not give a complete idea as to the merits of the system of heating and ventilation of a building. This can only be obtained by a series of records of the effects produced by it under various circumstances of external temperature, moisture, wind, &c., the amount of coal burned, and the effects upon the health of the pupils. Such records are very rarely kept. If they were made the rule, and superintendents and teachers were expected to see that they were regularly and accurately furnished, the effect would be to settle a great many controversies as to the merits of this or that system of heating and ventilation, which controversies at present rest upon opinions merely; and they would also do much to induce the proper authorities to provide satisfactory means of ventilation in the numerous cases in which they are now wanting. Take, for instance, the records of temperature. These should be taken twice in each school session, once just as the school assembles, and again just before it is dismissed. They should be taken in different parts of the room: at the entrance of the fresh air, at the point of discharge of the foul air, at the level of the children's heads, and on the floor. They should be taken, moreover, not from the ordinary cheap thermometers, as purchased in the shops, but from thermometers which have been tested and which are accurate to within at least one degree. It would be still better if these thermometers included both the wet and dry bulb thermometers, so as to obtain the moisture of the air as well as the temperature. The most important record, however, is that which relates to the health of the pupils. It seems at first sight somewhat curious that there should be so little scientific evidence obtainable as to the effects of overcrowded, overheated rooms, and impure air of various kinds upon the health of school children. I have repeatedly found, in going into school rooms, where the air was so impure as to be decidedly offensive to the sense of smell to one entering from the outer air, and where the carbonic acid ranged from twenty to thirty parts in ten thousand, that upon inquiry the children, or at least a great majority of them, made no special complaint of ill-health, nor was it possible to show from their condition, as observed, that the foul air was having a bad effect upon them. This want of evidence is due in part to the great power which the childish organism has of accommodating itself to circumstances, and in part to the fact that the evil effects of impure air are remote rather than immediate, and show themselves at periods from one to perhaps twenty years after the exposure.

It is so highly desirable that a systematic record should be kept of the health of children and teachers and the results which would be obtained from a comparison of such records for a number of school buildings in different cities would be so valuable that it certainly seems worth while to make at least an attempt to obtain them. I am quite aware of the difficulties in the way of making such records complete

and accurate in all respects. Neither the statements of the children nor in many cases of the parents or guardians can be relied upon as to absence on account of sickness, and more especially as to the kind of sickness; nevertheless it does seem possible that when a child is first admitted to a public school a record could be made of its physical condition, including powers of vision and hearing, height, weight, &c., and that thereafter all absence from school on account of alleged sickness should be so noted, as well as the character of the illness, so far as this can be ascertained. In this connection, I would invite your attention to the means used in some investigations undertaken by Prof. Henry P. Bowditch, of Harvard University, respecting the laws of growth in children as shown by investigations made upon school children in Boston.

These data are collected upon cards, of which specimens can be obtained from Professor Bowditch, and of which the following is a copy:

FOR SUCCESSIVE SETS OF OBSERVATIONS—FEMALES.

Record all linear measurements at nearest centimetre; all weights, at nearest kilogram.

Name (or initials), ————; birthplace, ————.

	1882	1883	1884	1885	1886	1887
Age.....y. m..						
Height, without shoes.....cm..						
Sitting height.....cm..						
Finger reach.....cm..						
Chest girth, inspire.....cm..						
Chest girth, expire.....cm..						
Weight (in ordinary indoor clothes).....kilo..						

Nationality of father, —; mother, —; paternal grandfather, —; paternal grandmother, —; maternal grandfather, —; maternal grandmother, —.

Color of eyes, —; color of hair, —.

Occupation (of husband if a married woman) (of parents if a minor), —.

Name (or initials) of observer, ————.

Reverse side.

The height is to be taken in an upright position, without shoes, the feet being close to the measuring rod. If, in the case of infants, it is necessary to measure in a recumbent position, the fact should be stated.

The sitting height is the vertical distance between the top of the head and the surface upon which the individual is seated.

The finger reach is the distance between the tips of the middle fingers when the arms are extended horizontally, the breast and arms being in contact with a wall. The chest girth should be taken after a forcible inspiration, and also after a forcible expiration, the measuring tape being passed horizontally round the chest on a level with the nipples, over only a single garment. This measurement is to be taken only on men and children.

The weight is to be taken in ordinary indoor costume. In the case of children less than ten years of age, it is to be recorded at the nearest tenth of a kilogram.

The color of the eyes is to be recorded as blue, gray, brown, or black.

The color of the hair is to be recorded as fair, golden, red, brown, black, or gray. If gray, record also, if possible, the original color.

The nationality is determined by the place of birth.

The occupation should be given so as to indicate as far as possible the degree of comfort in which the individual lives.¹

Separate colored cards are furnished for males and females, and also distinct colors for a single set of observations and for successive sets of observations.

I think it greatly to be desired that, if possible, at this meeting a committee should be appointed to take into consideration this matter of systematically recording the health of children and to suggest forms of records.

I have satisfied myself that such an account could be kept by the teachers with comparatively little trouble and I feel assured that the results would be of great value. In fact, what we need above all things at present, as regards our public school buildings, is a system of accounts which shall show, not only the cost of their construction and repairs, which is merely one side of the question, but their effects upon the health of the children and teachers who are to spend no inconsiderable time in them. That a comparison of such records would lead to changes and improvements in the plans and method of construction of school buildings which would be in the direction of true economy as distinguished from cheapness there can be little doubt.²

The second paper laid before the meeting was read by Dr. CHARLES SMART, United States Army, and was as follows:

THE CHEMICAL EXAMINATION OF AIR AS APPLIED TO QUESTIONS OF VENTILATION.

The atmosphere of the earth has been examined repeatedly by chemists during the past hundred years. Specimens have been submitted to analysis from the city and the country, from the surface of the ocean and from arid plains, from high and low latitudes, from mountain tops, and even from heights reached by ballooning, and the results have always indicated a definite mixture of oxygen and nitrogen gases, with small quantities of accidental matters or so-called impurities which vary with the locality or the conditions affecting it. The oxygen, the active or vivifying agent according to the chemist and physiologist, is simply diluted by its admixture with the nitrogen which has no appreciable effect upon the animal economy. Twenty-one volumes of the former and seventy-nine of the latter form the aerial mixture; and the proportion

¹ See also article on Anthropometrical Methods, Tenth Annual Report of Massachusetts State Board of Health, 1879, p. 55.

² In the city of Oakland, Cal., regular reports of sickness in the public schools are furnished to the health department by the superintendent of schools. Those pupils who are absent from school three or more days consecutively on account of alleged sickness are reported as sick, and some interesting results and warnings are thus obtained. There should, however, be a distinction of sex and age in the reports from the schools in order to permit of comparisons upon these points.

is everywhere preserved, notwithstanding differing specific gravities, by the constant motion produced by cosmical forces, but especially by the power of diffusion or penetration into intermolecular areas which gaseous molecules are known to possess.

Among the so-called accidental matters or impurities, carbonic acid is notable, not only as existing in largest quantity and as being universally present, but as bearing a tolerably constant proportion to the bulk of the main constituents, except in the immediate vicinity of local sources of its production. So constant is its relative figure that even chemists have ceased to regard it as accidental, and have accepted it as forming an essential in the constitution of the atmosphere, which is therefore represented in percentages by oxygen 20.96, carbonic acid .04, and nitrogen 79.00.

The carbonic acid forms .04 per cent. of the volume of the atmosphere, or, in other words, 10,000 volumes of the air contain 4 volumes of the acid. Within limits, however, its quantity is subject to frequent variations. During the air examinations made recently in connection with the report on the condition of the public schools in this city, the external air collected on G street in front of the office of the National Board of Health yielded generally a little over or a little under 4 volumes in 10,000, but on one occasion 4.9 volumes were obtained and on another 2.2 volumes. Two years ago I found similar variations in the air of the Capitol grounds. Several years ago Wetherill, in his report on the ventilation of the House of Representatives, records the external air as unusually free from carbonic acid, from 2 to 3 volumes per 10,000. I examined the air on the Rocky Mountains in the spring of 1874 and found a steady and gradual decrease day by day from 4.5 to 2.6 volumes. Some points have been defined concerning these tides in the carbonic-acid volume, especially by the observations of De Saussure, but practically no one can as yet predicate from one experiment the probabilities as to the next day's results.

Ammonia is another of the accidental substances. It is evolved from nitrogenous organic matter during the putrefactive process, but probably its main source is the inorganic nitrogen of the atmosphere itself, which is combined with ammonia and nitrous and nitric acids by electric agency. Its quantity is variable, but 1 milligram in a cubic metre is a not unusual amount. This is equivalent to a grain in about 23,000 cubic feet. Rain washes the ammonia from the air to the surface of the earth, and in the rainfall it can always be detected and measured. Its quantity is increased during thunder storms. A figure frequently found in analyses is 5 milligrams per litre, which is equivalent to 1 grain in about 34 of our gallons. In dealing with a few cubic feet of air the ammonia is necessarily a very minute quantity, but when the annual rainfall over a tract of country is made the basis of the calculation, it becomes one of interest to the agriculturist.

Watery vapor is constant in its presence in the air, but so varying in its quantity as to be considered by many an accidental constituent.

The laws which govern its presence are known. The dew point can readily be determined by experiment or obtained by calculation from the difference between the dry and wet bulb thermometric readings, and the grains of aqueous vapor which the air contains per cubic foot, or which it would contain if saturated with moisture, can be estimated.

The air is also permeated with organic matter, at least all air near the surface of the earth; but while carbonic acid, water, and ammonia can be detected and measured with the utmost exactitude, little has been determined concerning the chemical constitution of the aerial organic matter. Nevertheless it is certain that of the organic matter of the air a large proportion is not only solid and particulate, but living. Putrescence, which was formerly regarded as a chemical action in which the oxygen of the air was chiefly involved, is now recognized as an incident in the life history of a species of micro-organism. The spores of fungi are also universally diffused and developed wherever are found the favoring conditions as to soil, moisture, and temperature. The microscope and what are known as culture experiments have demonstrated the existence of the aerial organisms and the conditions of their development and growth.

The air constituents which have been mentioned must, from a scientific point of view, be considered as individually essential to the constitution of the atmosphere: the oxygen as being vital to animals, its quantity being preserved by the evolution during vegetable growth and the equilibrium between the two kingdoms of nature; the nitrogen as being an inorganic supply, which is susceptible of advance to organization and life by the electric production of ammonia and the assimilation of that ammoniacal nitrogen by vegetable organisms; the carbonic acid as vital to vegetation, its quantity being preserved by the evolution from animal life and the retrogression of the carbon of dead organic matter during putrefaction; the ammonia as needful to the building up of organic tissues by vegetable life, which organic tissues when overtaken by death are returned to the ammoniacal condition by the action of the atmospheric micro-organisms; lastly, the watery vapor, without which desiccation would bring to an end the whole of these life actions in which the atmosphere participates.

This is the normal constitution of the atmosphere, and the object of ventilation is to furnish our houses, school rooms, and other artificial shelters with an air for respiratory purposes which shall not differ materially from this standard. Other gases and organic matters are sometimes present in certain specimens of air, but they are truly accidental, are circumscribed in their extent, and depend for their existence on local causes or conditions. The exhalations from the human lungs and skin which give the close, heavy odor to the air of an unventilated school room have been captured and put into the retort and test-tube, but the methods of dealing with them hitherto adopted have failed to give satisfactory information even as to their physical constitution. Are

they gases, liquids, or solids of ultra-microscopic size dissolved in or borne upon the cloud of watery vapor ? The field is here open for investigation, but it is unlikely that much will be accomplished until the progress of science offers some new method, instrument, or reagent by which the subtle emanations may be examined. During dry seasons the air may be loaded with dust, which is a generic term including everything, organic or inorganic, light enough to be swept up by the air movements. From the imperfect combustion of coal the deleterious carbonic oxide may be evolved. Ground air may be drawn into ventilating currents and impair their usefulness by its excess of carbonic acid, while, if the soil is polluted, miasmatic influences may accompany the gaseous acid and undermine the health of the consumers. The unknown constituents of the sewer emanations, the exhalations which are connected with vegetable decomposition, and which are spoken of generically as malaria, and possibly the specific poisons of typhoid fever, cholera, and other diseases may sometimes infect the atmosphere. But these, although their study is fraught with important issues to the public, do not enter into the question of ventilation except in so far as concerns their absence from the ventilating supply.

When air of the normal constitution above described has been used for life purposes by a number of individuals in a closed room, its carbonic acid, aqueous vapor, organic matter, and ammonia are increased and its oxygen materially diminished. Any of these changes might be taken as the index of the change from normal quality in the air and hence as the index of ventilation. A tedious filtration is involved in the separation of the organic matter and an accurate method of estimating it has not as yet been developed. The aqueous vapor can be readily determined, but its quantity is liable to be increased by evaporating surfaces unconnected with deterioration of the air. Recently Dr. Angus Smith has been studying the condensation of the ammonia on glass plates as a ready method of testing the quality of the air, but although the ammonia, when collected, can be estimated with the utmost precision, the method of collection is faulty. Of late I have been filtering known volumes of air through Austrian glass wool, chiefly for the separation of organic matter, but incidentally for the condensation of the ammonia upon the fibres. The results are seemingly more affected by the hygrometric condition of the air than by the absolute amount of the ammonia present in it. The quantity of ammonia which adheres to the glass is neither the whole nor a definite fraction of the whole, but more or less, according to certain atmospheric conditions.

Satisfactory results can be obtained by determining the percentage of oxygen in the air ; but the simplest and best method of ascertaining its deterioration by the action of respiration consists of an estimation of the quantity of carbonic acid present in a given volume of the air. Not that the carbonic acid is the special poison thrown out from the lungs during respiration — the organic exhalations are probably the most

active of the deleterious products—but the increase in the amount of the carbonic acid over that naturally present in the external air is a measure of the respiratory use to which the air has been applied and of its fitness or unfitness for further use. Carbonic acid, when in considerable amount, is believed to produce evil effects upon the system, but the languor and oppression, the headache and flushings, which result from deficient ventilation, are consequent rather on the deficiency of oxygen in the air, together with its organic foulness.

The carbonic acid is fixed and estimated by its affinity for the caustic earths lime or baryta, with either of which it forms an insoluble carbonate. The alkalinity of the caustic solution is known; the carbonic acid removes or neutralizes a portion of that alkalinity, and the loss is the measure of the carbonic acid which has effected the neutralization. The process originated with Pettenkofer. Its practical details are readily understood.

A solution of pure oxalic acid is made containing 2.864 grams per litre of distilled water. This strength is such that 1 gram or 1 cubic centimetre will neutralize as much caustic baryta as would combine with 1 milligram of carbonic acid. A baryta solution is then made which will correspond in strength to the acid solution, 1 cubic centimetre of the one neutralizing 1 cubic centimetre of the other. Practically they may not be of exactly equivalent strength, but the relationship they bear to each other must be ascertained and borne in mind during the subsequent calculations. The baryta solution is poured into a number of clean and dry two-ounce vials, which are corked securely and weighed. The total weight (bottle and contents) is marked upon the label of each bottle.

When a carbonic acid determination is to be made, the air is collected in a large, clean, and dry bottle or narrow-mouthed jar, the capacity of which is accurately known. The bottles which were used in the recent examinations contained about ten litres each. If the jar, as is not unfrequently the case, has a temperature different from that of the room from which the sample is to be taken, it must be permitted to stand for a few minutes until the difference has disappeared. A rubber tube connected with the nozzle of a bellows is then dropped into the jar, which is filled with the air to be examined, taking care that the air entering by the valve of the bellows is not contaminated by any direct respiratory streams from individuals around. The operator, of course, knows the capacity of the bellows and the number of strokes necessary to insure the change of air in the bottle. As soon as this is accomplished, one of the prepared baryta vials is carefully uncorked and its contents poured into the jar, which is then closed by an accurately ground stopper or tightly fitting rubber cork. The baryta solution is then shaken in the jar and made to flow all over the interior to promote its contact with the contained air. Generally a whitish turbidity or milkiness is developed during the shaking, but, to insure the thorough absorption

of the carbonic acid, it is customary to let the jar stand until next day before proceeding further with the investigation.

In the mean time the volume of air operated on is calculated from observations taken at the time the air was secured. The levels of the barometer and dry and wet bulb thermometers must be known and the quantity of baryta solution introduced into the jar. The last is obtained by reweighing the now empty vial. Its loss in weight gives the quantity in grams of the baryta solution employed, and this number, as cubic centimetres, has to be deducted from the known capacity of the jar. It is necessary, however, to express this air volume in the space which it would occupy when dry at zero Centigrade and under an atmospheric pressure of 760 millimetres of mercury, that the results of different experiments may be susceptible of comparison. Increased temperature expands the volume of a gas and increased pressure diminishes it, while the pressure of the watery vapor present must be taken into account. It is needless to particularize in these matters. The temperature observations will give the dewpoint, through which can be obtained from the observations of Regnault and others the pressure or tension of the aqueous vapor. If P represent this pressure, T the observed temperature in Centigrade degrees, B the barometric height in millimetres, and V the capacity of the jar minus the cubic centimetres of baryta solution introduced, the corrected volume will be equal to:

$$\frac{V (B - P) 273}{(273 + T) 760}$$

Next day the liquid contents of the jar are transferred to a small beaked flask, known as Schuster's alkalimeter, and the weight of the flask and its contents are noted, that the loss of weight may indicate the quantity used in the subsequent experiment. A small beaker has had weighed into it 10 grams of the oxalic acid solution—1 gram or 1 cubic centimetre of which is equivalent to 1 milligram of carbonic acid—and the acid solution has been colored red by the addition of a tincture of litmus. Into this the deteriorated baryta solution is dropped from the alkalimeter rapidly, until a haziness pervades the liquid, and then slowly, until one drop changes the color to a dark purple. The acid has been neutralized and the loss of weight suffered by the alkalimeter gives the quantity of the baryta solution used in effecting the neutralization. Let it be supposed, for example, that 60 grams of the solution were introduced into the jar, and that 30 grams of it are now required to neutralize the 10 grams of oxalic liquid; the total of 60 grams will be sufficient to neutralize only 20 grams of the test acid, while before exposure to the carbonic acid of the bottled air it was capable of combining with 60 grams. There has therefore been removed from its solution by the carbonic acid as much baryta as would neutralize 40 grams of the oxalic solution, i. e., 40 milligrams of carbonic acid were contained in the air operated on.

The experimental response to the question How much carbonic acid

in the corrected volume of air[†] is given in weight, but the relation of weight to volume is known. One milligram of carbonic acid occupies a little more than one-half of a cubic centimetre at zero Centigrade and under 760 millimetres of pressure. Multiplication by the factor .50685 will transform weight into volume, and a simple calculation will give the volumes of carbonic acid per 10,000 of the air examined. It must be remembered, however, that this volume of carbonic acid is not due to respiratory action, but includes that which is naturally present in the air. When the result of a contemporaneous experiment on the external air has been deducted, the remainder indicates the carbonic *impurity* of the air or that due wholly to the respiratory function.

The chemistry of the investigation ends here and gives place to calculations; but, before concluding by a reference to these, it may be well to illustrate two simple methods of approximating to the amount of carbonic acid. They are known as the "household" and "minimetric" methods.

The former is based upon the fact that when lime water is shaken up with air a certain amount of the precipitated carbonate must be diffused in the water before the eye can recognize the presence of the turbidity. The larger the percentage of carbonic acid in the air the smaller will be the volume of that air needful to cause a visible haziness. A stock of lime water is prepared by shaking up slacked lime with distilled water, permitting it to settle, and siphoning off the clear liquid for use; and a series of bottles are procured, ranging in capacity from 2 to 20 ounces in which to make the experiments. The following table expresses the relation between the size of the bottle and the volumes of carbonic acid in the air according as a turbidity does or does not occur when half an ounce of the lime water is used.

If the number of volumes of carbonic acid in the air is smaller than in the last column of the table, the effect of adding the lime water will be to leave the mixture clear; if larger, the mixture will be turbid.

Size of bottle in fluid ounces.	Carbonic acid in volumes per 10,000 air.
20.6	3
15.6	4
12.5	5
10.5	6
9.1	7
8.0	8
7.2	9
6.5	10
6.0	11
5.5	12
5.1	13
4.8	14
4.5	15
3.5	20
2.9	25
2.5	30
2.0	40

If an 8 ounce bottle shows turbidity, the presence of more than 8 volumes is indicated; how much more, must be determined by a second experiment. Taking a $6\frac{1}{2}$ ounce bottle, the air is known to contain less than 10 volumes if no precipitate is developed. The carbonic acid can therefore be stated as constituting from 8 to 10 volumes per 10,000 of the air. But a third experiment with a bottle intermediate in size will correspondingly reduce the limits of uncertainty regarding the carbonic acid figure.

In the minimetric process half an ounce of baryta solution is introduced into a bottle the capacity of which is known (70 ounces in the present instance) and which is charged with the external air. This, when shaken, becomes turbid, and its turbidity is used as a standard in subsequent experiments. For purposes of comparison this standard solution is transferred to a $2\frac{1}{2}$ ounce bottle, similar in shape and color of glass to that in which the minimetric experiment is to be conducted, and the two ounces of external air which it contains are to be added to the capacity of the larger bottle, making in this case 72 ounces.

Half an ounce of baryta water is poured into a $2\frac{1}{2}$ ounce bottle which has been filled with the air to be examined. This is attached to an aspirator, or to what answers the purpose as well and is readily extemporized, a large bottle with a siphon and rubber connections. The baryta is shaken up with the air in the small bottle, and a second charge of two ounces introduced by withdrawing that volume of water by the siphon from the larger one. This is also shaken up, and, if no precipitate occurs, air is added as before by siphoning off water until a turbidity appears which matches the standard obtained from the external air. The same quantity of carbonic acid has been thrown down in both instances and the quantity of air employed in each case is known, so that the relation which the carbonic figure of the examined air bears to that of the atmosphere at large can easily be ascertained. If the external air which contributed this precipitate measured 72 ounces and the air which was passed through the test bottle 36 ounces, the latter sample would be recorded as containing two volumes of carbonic acid for one existing in the former, or 8 volumes per 10,000, on the assumption that the external air contained its average of 4 volumes.

Accuracy is not to be expected from these methods, but they are useful to indicate whether the air of a room is overcharged with respiratory products. We have simply to shake up the charge of lime water in an 8 ounce vial to know by the turbidity that the air is not as it should be.

Having found the carbonic impurity, or the total carbonic acid minus that existing in the external air, in the specimen under examination, we may inquire into the information which it furnishes regarding the ventilation of a school room or other apartment. What is the rate of inflow a minute which is indicated by the amount of carbonic impurity? To ascertain this it is needful to know the average rate at which carbonic

acid is eliminated from the person. This evolution varies according to conditions of rest or activity. Professor Parkes states the yield at from 12 to 16 cubic feet in 24 hours, or from .5 to .66 cubic foot per hour. Huxley gives 360 cubic feet as the volume of air expired daily, and as the air of expiration is known to contain 4 per cent. of carbonic acid, this is equivalent to an hourly production of .6 cubic foot. Other experimenters have arrived at similar results. I am not aware that any special investigation has been made into the evolution from children under school-room conditions, but in their absence .6 cubic foot may be accepted as a close approximation to the truth. This is a convenient number, as it corresponds with .01 cubic foot a minute. The capacity of the room must be ascertained and in exact calculations deduction should be made for the body bulk of the occupants and for the furniture. The time during which the deterioration has been going on is another factor which enters into the calculation.

The carbonic evolution .01 cubic foot per minute per person, multiplied by the number of minutes, gives the amount of the carbonic impurity generated. When this is divided by the carbonic impurity found by experiment in 10,000 volumes of air, the quotient multiplied by 10,000 will express in cubic feet the volume of air with which the respiratory products have been diluted. But as the air volume in the room has contributed to the dilution, its capacity has to be deducted from the total to obtain the amount of the inflow.

Thus, if the data consist of 50 persons, 50 minutes, 9,000 cubic feet, and a carbonic impurity experimentally found of 5 volumes:

$.01 \times 50 \times 50 = 25.00$ cubic feet of carbonic acid expired.

$\frac{25}{5} \times 10,000 = 50,000$ cubic feet of air required for the dilution.

$50,000 - 9,000 = 41,000$ cubic feet of inflow.

$\frac{41000}{50} = 820$ inflow per minute in cubic feet.

The inflow per minute being known, other questions which need only be suggested may be answered. An experiment has been made on the air of a room which contains only thirty pupils, but is seated for fifty; what would the result have been had all the seats been occupied? The session has lasted but 40 minutes at the time of the experiment; how would it have resulted if made at the end of two hours?—and so on.

In practice it is often found that the inflow as determined by the anemometer is much greater than that obtained from the chemical results. That the air enters is certain, and that it fails to be utilized in diluting the expired air appears equally so. A want of diffusion must be inferred in explanation. A notable example of this was recently found in one of the rooms in the Franklin school, where 800 cubic feet per minute certainly entered, while but 324 feet contributed to the ventilation. The cause in this instance was manifest. The temperature of the incoming air was so great that it rose immediately to the ceiling, whence

it was drawn off by the lowered windows and foul air flues. To determine the existence of currents which interfere with a general diffusion, the room may be filled with vapor of chloride of ammonium. Liquid ammonia is poured over pieces of thick blotting paper lying upon a shallow plate, and over them, by way of a flue, is placed a wide cylinder of the same absorbent paper moistened with hydrochloric acid. The fumes rise quickly, filling the room and indicating the course and character of its air movement.

At the conclusion of this paper Mr. WILSON offered the following resolution, which was unanimously adopted:

Resolved, That the Committee on Appropriations of the House of Representatives be requested to furnish this department, for publication with its proceedings, a copy of the report of Dr. J. S. Billings, vice president of the National Board of Health; Edward Clark, Architect of the Capitol; and Hon. John Eaton, Commissioner of Education, recently appointed by the House of Representatives to examine and make a report upon the condition of the public school buildings of the District of Columbia, and to make suggestions in relation thereto. (See appendix, page 107.)

The next paper was presented by Hon. H. S. JONES, PH. D., superintendent of schools at Erie, Pa., and secretary of the department of superintendence:

OBSTACLES IN THE WAY OF BETTER PRIMARY EDUCATION.

Whoever would attempt to show that, during the majestic march of our country through the last half century, the education of the people had kept step with the other enterprises forming important factors in the building up of a great nation, would find failure easy and success extremely difficult, while he who would venture to prove that education was hardly progressive, was indeed a laggard twenty-five to fifty years behind the wants of the time, would find an abundance of material with which to make out his case.

It is purposed to discuss, in unvarnished phrase, some of the common obstacles in the way of better primary education.

The term obstacles, as applied to educational hindrances, is used in its radical sense, representing difficulties that are serious and as firmly established as the malaria of the Pontine marshes or the large families of consonants in the Welsh language.

The expression primary education in this paper has reference to the ordinary district school and the town school below the high school.

Chief of the obstacles to which your attention is called is:

I.—A WEAK EDUCATIONAL APPETITE.

A strong appetite for education does not consist in mere capacity or desire for learning, but in an impelling, conquering force that enables one not only to acquire knowledge by the aid of what are called advantages, but drives him to seek it and find it under discouragement and frequent defeat, and, more, to assimilate it, make it individual.

It is found in every character of prominence: Franklin, Clay, Greeley, Lincoln, Edison, Garfield. It exists independent of the school, though the school may right nobly assist in its development, or, unhappily, destructively enfeeble its possibilities.

Let us try to form an estimate of the public educational appetite. Will the people endure as much, save as much, think as much for education as they did years ago? Is not the sentiment vigorous and growing, that education should come rapidly, easily, and cost little? Is the demand for educational bequests and endowments growing less? Do not the leading, wealthy institutions of our country stand hat in hand like mendicants?

Suppose those young people in our higher institutions of learning who have no financial worry about the morrow were called upon to pay the actual cost of their instruction, what would be the result? The verdict would be that superior education is too expensive even for the wealthy, a luxury to be shunned. What sentiment does the limited and irregular attendance of our free schools reflect? The thousands that attend them are very, very young, and like unripe fruit they drop off the school tree before their time. While parents value a little assistance or a few pennies earned by their offspring more than they do the benefits of school, the children, looking through parental eyes, soon lose taste for study and willingly drop out and join the vast army of the undisciplined, which ranks scarcely above the illiterate.

The tramp element is a social fungus marked "hard times" by labor reformers, but "no appetite for thought" would more surely hit the nail on the head.

As intimated, the school may have a part in causing the natural, intellectual appetite to become dyspeptic. The schools have suffered considerably from mental dyspepsia, caused by the unpalatable, uncooked, uncarved food of the old-time methods and the thin soup and pedagogical hash of the latter day saints. I would be the last to decry what are termed improved methods, but when they seek to be superlative in complexity or follow unhesitatingly even a great mind through all its windings, vagaries, and hasty conclusions, I would cry "Hold! Let us take counsel together, lest we lose that which we have and gain nothing."

The no-methods of the older days seem to be ingrained with stupid neglect, while those of the present, that attract and fascinate, are emphatic in coddling kindness and tend to keep the child childish.

If a boy has an honest, upbuilding appetite, it matters little, as to his growth, whether he eats with fork, knife, spoon, or fingers.

II.—ANY RESPECTABLE ANYBODY CAN TEACH, AND HIRING THE CHEAPEST ANYBODY IS ECONOMY.

This sentiment is as common and as tenacious of life as grass. It has been known to go into a decline and seem ready for burial, when, as

if by magic, its youth and strength are renewed and it takes an active part in forwarding civilization! Sometimes it is exceedingly timid, but a little persuasion of the right sort will coax it to the front, where it will lead and control public opinion. Following the last panic, it manifested the energy and vertebra of a General Jackson, sweeping broad sections of our fair land with the besom of "educational reform."

Not many years ago, in a city of considerable size and promise, the president of the school board, who was called "Judge" and had served his constituents in their municipal chambers and in the State legislature, said, in an address to the body over which he presided, that the salaries had risen far above the sentiment of the community, that the law of supply and demand should govern in hiring teachers, and he was convinced from the large number of applicants and the personal solicitations of their friends that the schools could be filled by persons who would be satisfied with ten dollars a month!

Like an untimely frost, this crisp political economy maxim, coming from so respectable and honorable a source, nipped in the bud a feeble effort to make poor schools better. "Supply and demand" has forced into many a school the husks and chaff of the crowd that stand eager for any place at any salary.

A prominent business man forcibly remarked that the school boards of the country were extravagant in salaries; 25 to 50 per cent. could be saved by giving out the schools to the lowest bidders. That would be business, and if the schools lacked in anything, it was in business methods.

The friends of improved education have founded normal schools—only a fraction of the number needed—and can we look for a proper increase of these institutions so long as the normal school has only a precarious hold on the public?

Their students and graduates have found that they must compete with the army of anybodies, and that only here and there have they been shown favor on account of their professional training. A prominent normal school principal recently stated that his experience was that the better teachers were prepared the shorter would be their term of service, other callings offering a greater premium to the energetic and disciplined.

Cities have crowned their systems with normal departments and left the teacher-graduate to take her chance with the non-professional applicant.

Is it surprising that the normal school has no professional breadth? that it is a mere academy surrounded by a sort of pedagogic halo?

Mr. Bland says, "Give us the best teachers—professional teachers." But when importuned to use his influence in favor of Miss Goody Unfortunate of tender years, or Widow Oldtime, or Embryo Blackstone, the horizon of his judgment widens and he obeys the call to be "influ-

ential." The Bland family is large, active, and sympathetic, hence popular, for it serves the good people with alacrity!

Experience is but faintly recognized, and it is easy to find towns, like a wealthy city in the Empire State, that virtually say, "We pay just as much for blundering experiments as for solid, finished work!" This plan is a blessing to the experimenters, for through it the "good die early" and their places have to be filled!

Cities, villages, and rural districts take pride in showing the taxpayers how much less it costs them per scholar for teachers' wages than it does many other less economical communities. School authorities are never called to account by their constituents when the expense per capita for instruction shows that economy has been made equivalent to hiring the cheapest anybody.

The terms used by Adams in speaking of superintendents, in his "New Departure" pamphlet, reflect this sentiment: "The ordinary superintendent is a grammar school teacher gone to seed," "some retired clergyman or local politician out of a job!" "That this should be so is certainly most singular!"

Not a few laws pertaining to the county superintendency have been so framed as to make the highway to that office as broad and as easily travelled as that which leads to the heights held by the town constable!

This obstacle finds support in the orthodox method of examining teachers. Applicants are usually examined as if they were still mere school children, so that a bright boy or a bright girl of self possession and ready memory may go up to the examination and win a high grade certificate, while a person of mature judgment and skill as a teacher may fail to reach a fair standard. In looking over "model questions" published in books and educational journals, it will be found that but a few refer to the business of teaching. A set recently published contains but three that would cause one to suspect that they were for teachers:

- (1) "What is the best method of ventilation?"
- (2) "What is the principal object of education?"
- (3) "How do you regulate whispering?"

III.—IGNORANT OFFICIAL INTERFERENCE.

This may be beaming with enthusiastic good-nature and worthy intention supported by an amount of school information large enough to give edge to self confidence, or it may glow with that fierce destructive hatred which would destroy an institution rather than allow it to exist with apparent defects.

The childlike confidence with which some school officials handle educational affairs is equal to that shown by the pet of the family when he puts his tiny finger into the candle and succeeds in learning a lesson and in creating a disturbance.

Mr. Spellbound (ex-champion speller) tells the new and hopeful teacher

that the school can't spell. "Spellin' is what they want! no new-fangled ways; have 'em stand up and spell. When I went to school I learned to spell; you may have heard of it." The campaign opens with a daily battle of words; "spellin'" becomes a hobby and the best speller wears the crown.

Spellbound is followed by 'Squire Root, who observes to the happy teacher that she is running spelling "into the ground." "Rithmetic is what they want; Shakespeare couldn't spell his own name. Suppose you ask 'em this simple question, and see 'em get stuck: What's the square root of sixty-four?"

John Hancock would bring penmanship to the front, so that a page of a pupil's manuscript would be rich in shading and flourishing, but poor in legibility.

Director Crabb in his "remarks" to the school lays down the test of discipline. "The scholars don't sit still. When I taught school you could hear a pin drop. You must have order; a school without order is a failure."

Patrick Henry urges upon the teacher the importance of speaking and exhibitions. "The future governor of the State may be under your instruction, or possibly the coming President of this great nation; see that they are trained to address their fellow citizens."

The teacher labors on under an increasing pressure of direction and advice, following each voice in turn, until in a state of bewilderment she loses her individuality and wanders without purpose through the term and rejoices when "the last day comes" and all is over.

A few years ago a director seeking a teacher called at my office; he was referred to a normal school. The advice was not at all acceptable. "We don't want any normal school nonsense. We tried one of 'em. Everything was new-fangled. Scholars didn't stand up and spell, and they were told to help themselves, and he actually refused to show some of 'em when they got *stuck*. Didn't have such foolin' when I went to school. He wouldn't listen to my suggestions, so we put him out."

Sometimes official interference is highly respectable, as is well illustrated in the story of the "New Departure at Quincy," in the words of Mr. Adams: "During the examinations the schools were taken wholly out of the hands of the teachers. The result was deplorable; the schools went to pieces. The committee were busy men, not specialists in education. Committees elected by popular vote are entirely unequal to any sustained effort."

The "Queen City" of the world in liberality in school affairs, is almost distracted over the primary school question. The hydra-committee, well informed, proud spirited, but irresponsible, have in a great measure ignored the experience and wisdom of their best teachers, and made them and their pupils instruments for forced experiments.

Surely this historic town spends money enough on her schools to place the methods of work in education in the hands of educators.

IV.—THE FREQUENT CHANGE IN EDUCATIONAL WORKERS.

The average rural school experiences a change of administration each term, and in towns and cities the mobility of teachers is not a little surprising. A superintendent of a pleasant city employing about seventy teachers finds that the teacher's life averages less than three years, and he urges the school board to organize a training department, in order that less of this brief service may be given up to experiment.

Another city, remarkable for its respect for "tenure of office" in teacher and superintendent, has but thirty of the present force of over a hundred who were in the schools six years ago.

A county superintendent was doing a noble work—elevating the standard of the schools—when a voice like one "crying in the wilderness" was heard: "He's getting too exacting in examinations!" "It's time for a change!" "No third term!" Election day came and went, and he was called to the common fate of his kind, to step down and enjoy the quiet of defeat.

I have in mind an experienced schoolman, a sort of educational Luther in his county, but I fear that at the next election the guillotine of popular opinion in favor of rotation in office will be applied to this "right man in the right place."

The experience of school boards is usually limited and narrow. Capable men, willing to go on and serve the public, must step aside for the inexperienced and possibly the utterly incompetent.

The picture grows no brighter when taken from the heights of State supervision. The tenure of office is too short to possess even the quality of sweetness. The chief officer can hardly do more than take a hasty survey of matters, make out a report or two, draw his meagre salary, and retire.

V.—FORSAKING THE COUNTRY SCHOOL FOR THE TOWN SCHOOL.

The statement openly and emphatically made, that the old time district school was better than its successor of to-day, is not so wild as it sounds. In many cases, the school of years ago, with its large number, its spelling matches, its debating society, the intellectual centre of a neighborhood, has dwindled to a state of feebleness unpleasant to contemplate. The well-to-do boys and girls seek the town school, leaving the home school to the very young and the poorer children, to be presided over by a youthful member of the large Micawber family.

Few young men of force and ambition now make the district school a stepping-stone to a broader and more exacting life. They find better support in their struggle to rise in other directions. It is doubtful whether it will be said of the Garfields of the next generation that on their way upward they honored and blessed the common school as instructors.

The superintendent of a great and ambitious State laments the weakness of the district school, and recommends consolidation; and in com-

plimentary terms infers that, as the people have accepted professional cheese and butter makers, they will soon be wise enough to call into their rural schools none but professional educators. It is evident, in this case, that cheese has the start of the children.

VI.—SELF SATISFACTION.

This assumes several forms, running from self glorification to stolid indifference. The majority voice too often says "Our schools are as good as any" or "They are the best."

Rarely do school boards visit other schools than their own or send their teachers to study the workings of other systems. The material affairs of municipalities suffer less. Fire departments, systems of sewage, ^wply, and paving are placed in comparison founded on actual observations made by committees aided by experts.

VII.—BRICK AND MORTAR.

This is not widespread, but it is contagious. General Garfield, in his last address to this body, said that soon the "great case" in education would be Brains *vs.* Brick and Mortar.

The tendency to estimate a school by a brick and mortar standard is certainly increasing.

It is applied alike to the "university" and the school of the pretentious village. In many instances, the people are so loaded with debt caused by showy and expensive school architecture that when their children cry for mental food they get in response cut stone instead of educational bread. A child in a palace in charge of a brainless teacher is poor indeed!

• With a simple introduction, I present the following as "big children" of the obstacles discussed:

(1) That mechanical drill is education, information swallowing, learning; (2) that a mental quart cup can hold a gallon; (3) sensitiveness of teachers to criticism (thin-skinned? why, some wear their nerves as an outer garment!); (4) lack of educational ideas among the people; (5) social lines, "blood and bullion;" (6) that the masses know *what* they want (vox populi, &c.); (7) that the school is to cure all weakness, remedy defects, and insure a money-making life.

These obstacles are of the people. Educators are not the people. Only a small fraction have enlisted for the war; the rank and file are "home guards." It has been often said that educators are fighting the great army of the king of ignorance; but it is seldom noticed that the supplies are mostly in the hands of the enemy! What would the world say had England attacked the Zulus with this battle-cry, "Feed us and we will conquer you"?

The educator who has turned his back upon the money-making world, *whose* pluck, patience, faith, and force increase with his years, is the *missionary of missionaries*. The missionary when called is *assured of*

a decent support while active and the tender care of the sheltering arms of the church when retired, and in addition the prayers of the faithful and the promise of "exceeding great reward" in the world to come. But the educator is offered a precarious living when "up and doing," and nothing when time or cruel fortune shall cry "Halt!" no half-pay, no pension, nothing but a fund of fond memories, his own feeble prayers, and only that hope of a heavenly reward held out to ordinary mortals!

The paper on "City systems," read by Dr. JOHN D. PHILBRICK, has not been furnished for publication.

Mr. WILSON, from the executive committee, announced the committee to bring the subject of national aid to education before Congress as follows: J. W. Dickinson, secretary State board of education, Massachusetts, chairman; H. Clay Armstrong, State superintendent of education, Alabama; Aaron Gove, superintendent of schools, Denver, Colo.; B. G. Northrop, secretary of the State board of education, Connecticut; Gustavus J. Orr, State school commissioner, Georgia; George Howland, superintendent of schools, Chicago, Ill.; James H. Smart, Indiana; J. W. Akers, State superintendent of public instruction, Iowa; G. T. Fletcher, superintendent of schools, Augusta, Me.; M. A. Newell, State superintendent of public instruction, Maryland; V. B. Cochran, State superintendent of public instruction, Michigan; William H. Gardiner, New Hampshire; J. A. Dix, superintendent of schools, Elizabeth, N. J.; Dexter A. Hawkins, New York; John C. Scarborough, State superintendent of public instruction, North Carolina; Daniel F. De Wolf, State commissioner of common schools, Ohio; H. S. Jones, superintendent of schools, Erie, Pa.; Thomas B. Stockwell, State commissioner of common schools, Rhode Island; Hugh S. Thompson, State superintendent of education, South Carolina; C. C. Painter, Fisk University, Nashville, Tenn.; Lyndon A. Smith, Vermont; J. L. M. Curry, general agent of the Peabody Fund, Richmond, Va.; B. L. Butcher, State superintendent of free schools, West Virginia; B. G. Lovejoy, member school board, Washington, District of Columbia; Allen Wright, superintendent of schools, Choctaw Nation, Indian Territory; J. W. Hoyt, governor of Wyoming Territory.

The morning session was concluded by the presentation of the following paper by G. STANLEY HALL, PH. D., lecturer on pedagogy at Harvard University:

CHAIRS OF PEDAGOGY IN OUR HIGHER INSTITUTIONS OF LEARNING.

LADIES AND GENTLEMEN: You have all heard of the notable chapter in a modern work entitled *Snakes in Ireland*, which reads simply "There are no snakes in Ireland." If the author of that chapter had frankly added that he had never been in Ireland and was not even a naturalist, his case would have been still more like my own; for I regret that I must begin the discussion of the subject which has been assigned

me in a hardly less inauspicious way, as, first, there are no chairs of pedagogy in our higher institutions of learning, or but two, I think; and, secondly, the present speaker's studies have been so centred on the practical psychology of teaching and learning that he can only plead the pressing importance of the subject for presenting a few considerations, some of which have not had time to become quite matured.

Perhaps the first thing urged by those who advocate such chairs is the German precedent. During the semester which has just ended between 40 and 50 courses of lectures on pedagogy have been given in the various German universities. A few of these are but two hours a week; a few are confined to the pedagogy of special sciences and designed for future professors in these departments. Sometimes a disciple of Hegel, like the late Professor Rosenkranz, of Königsberg, or of Herbart, like Strümpel, in Leipzig, or a positivist, like Laas, of Strasburg, loves to vary the attractions of his philosophy by lecturing from once to four times a week on some pedagogic theme. A high church, low church, or a Catholic theological professor chooses this subject sometimes to indoctrinate future teachers and through them the rising generation in what he considers sound theories of education. Thus it comes to pass that many of the voluminous treatises on pedagogy which emanate from professorial chairs in Germany, while having much in common, differ often in detail and often still more radically in first principles respecting the ultimate ends, objects, and spirit of education. Thus it comes that most of the religious, philosophic, and scientific tendencies have not only found their expression, but have their disciples among teachers of the public schools. This not only tends to prevent stagnation, a great and constant danger in education, but (neglecting the polemics, rarely tedious or bitter) each standpoint has contributed something new and valuable; and vast as is the body of pedagogic literature in that country, the human mind is still vaster. Very few professors who have lectured on pedagogy there have made it their central interest from first to last, and it is often an incidental if not a second class course. Of the three or so who have made pedagogy their exclusive specialty, perhaps the most active is a disciple of Herbart, who edits a year book, visits schools with his pupils, studies children and methods, especially of primary grades, has published two valuable books, lectures constantly in the university, and has treated with great detail and authority several of the elementary branches. Most of the pedagogical literature of that country is written by teachers of various grades, and is of every degree of merit and interest. Perhaps a score of the more comprehensive treatises are very valuable, full of suggestion and stimulus, while over much of these writings, it must be confessed, the very spirit invoked in the Dunciad has woven a resistless spell; to read it is like sifting a bushel of chaffy, philosophic words for two grains of wheat.

In several of the universities of Great Britain, individuals able and

interested in the subject have been invited to give single courses of lectures on some special aspect of pedagogy for which they were best qualified, and one or two permanent professorships have been established. In France and Italy university lectures have also been given, but I know of no department yet established on a permanent basis.

In matters of education, however, we must not be guided too much by foreign precedent, although we have very much to learn from Germany. We have our own peculiar problems, which we must solve in our own peculiar and independent way. There is a pregnant sense in which the American school from bottom to top, from Kindergarten to university, is and must be unique. Here every one who does not send his child to school (which he should do for the same reason as he pays his taxes or fights in time of war) must be regarded in a peculiarly insidious sense an enemy of the state. A republic like ours should be especially an educational state. The life of a republic, it has been well said, is a struggle for existence against ignorance and the evils which troop in its train, and the question whether such a form of government as ours can be permanent is at bottom a question of education, because a self government demands a so much higher degree of knowledge and virtue among its people than any other form of government. Because our great outstanding problems can be solved only gradually, and by no other means than general education, school laws should be a most important branch of legislation by the state. And the matter of popular education should be one important care and interest close to the heart of all higher institutions of learning aided by the state, if not also of all those whose property is exempted from taxation by it. The former should have a peculiarly public function and interest in education. If there be any help in chairs of pedagogy, or even any reasonable prospect of help in them, the need of it is great and increasing enough to warrant the experiment. Moreover, a university is historically and preëminently a teacher of teachers in the broadest sense, as indeed the very degree "doctor" implies, and not in any sense a finishing or industrial school of any sort. This function is one which I am sure the American college cannot afford to lose sight of behind the narrower question, so liable to eclipse it in these days of hot college competition and rivalry, "Will it be of immediate and material help to us?" School boards, it is said, have great and too often almost sole initiative power, but a very rapidly increasing number of the members of these board are graduates. And if (which, so far as I could judge from nearly five years' university experience there, is quite the custom in Germany) most students, not scientific, were to hear one course of pedagogy, they would be much better fitted for the duties of that position.

Again, original investigation has a rapidly increasing value in college economics, and, as I believe, the prospects for new advances in this direction are now more pressing than ever before. Many colleges, again, are now surrounding the central work of their courses with a more or less

broad and defined penumbra of electives both hard and soft, of lectures and incidental courses of various kinds, somewhere among which a mild experiment of pedagogy might be attempted by the most cautious trustees without committing the institution irrevocably to it. If we had the admirable docent system of Germany, by which any young man who could pass the required examinations, which are special, hard, and long, could try his luck at lecturing in any university where he could attract students, provided only that he could live without salary, being paid by student fees alone, there is reason to think that this question like many others would settle itself by a slow and sure process of natural selection.

Perhaps the strongest objection to the establishment of such chairs, if not that most often heard or made by teachers, is that teaching cannot be taught, that it is not a science, that there is no philosophy of teaching. Sometimes it is said that, at least in the higher branches, knowledge of the subject is all that is needed; or again that every teacher must have his own method, peculiar to himself, if not learned by his own experience; or, again, that pedagogy is like agriculture, dentistry, or business, each of which may be taught in colleges by itself, but the matter of which is only a new combination of what is already taught in chemistry, botany, physiology, political economy, &c., but that there is no domain or body of fact and truth peculiarly and exclusively appertaining to it alone, as there must be to a true science. Its material, it is said, is partly drawn from general knowledge of human nature, and partly, like acoustics for the musician, from an extraneous science, and of questionable practical applicability, or perhaps the adverse inference is based on the well-known disagreement of the best writers on education. This line of argument, though far less emphasized now than formerly, still requires our serious attention. There is a strong pressure upon the universities to found new chairs, just as there is upon the schools to introduce new studies, and it must be borne in mind that lectures and text books cannot be equally valuable upon all subjects, but that deep channels of experience and fruitful mines of wisdom have opened only in a very few directions. Is there then breadth, depth, and richness enough of scientific soil for our most useful plant to strike its own deep root, and not flourish with a parasitic life?

It will be perhaps a convenient way of answering this important question if we hastily sketch the qualifications of and inventory the matter to be treated by an ideal teacher of pedagogy — an *ideal*, observe, which is perhaps nowhere fully realized, perhaps is not yet realizable, but respecting the nature of which there is now, I think, no great diversity of opinion.

First, then, he should be a more or less experienced teacher. He must be schooled even in the petty difficulties constantly encountered in the school room and have developed tact to overcome them. He must have felt how prone we are in teaching, where it is hard to evolve

wisdom and right temper at call, to be handicapped by carking cares which make us welcome and trust too much in petty expedients. He must be profoundly and constantly sensible of the wide and ruinous chasm so liable to yawn between theory and practice, and never allow himself, as not a few pedagogues have done, to get out of sympathy with practical teachers nor allow them to get out of sympathy with him; for until teachers all have a systematic course of pedagogy behind them before entering their profession, all the best of them will be his hearers if he lectures accessibly to them, his readers if he writes, or perhaps his pupils for a term in his regular academic work. He must no doubt sometimes criticise and trouble them, and they him; must, perhaps, sometimes be more feared than favored; must resist the clamor for *only* what is immediately practical next day in school; must know just how far to go toward minute details and how much to leave to individuality, tact, and circumstances. When teachers become mechanical or cliquish, and countenance each other's errors, neglects, or deficiencies by a too intense esprit de corps, his position and his disposition should be so independent that he may see and point out plainly the evils sure to result, but all in a spirit so fraternal as to avoid all species of friction so far as in him lies, which as a rule is just so much force lost from the proper work of instruction.

Secondly, he should have seen and studied with great care and detail many schools of different grades and of many kinds, if possible in many lands, critically comparing methods and results, and have seen that in teaching there is not generally one single and only way of salvation, but that there are often several equally good methods of compassing the same thing. To get in a rut—a tendency in teaching as constant and strong as the law of gravity or organic decay—is bad, but to believe it the great and only highway of the world is worse yet, while it is often a great advantage to modulate from one method over into another no better. But, furthermore, a knowledge of the best results of others' experience is sure to be choicely culled in this comparative way, which will make it less needful for the young teacher to waste the precious energies and time of the children in getting his trade in the dearest of all the dear schools of experience. This observation should extend, it is needless to say, to all the items of light, ventilation, seats, plan of school-house, educational laws, appropriations, supervision, as well as books and teaching apparatus of all sorts, culminating, however, in the detailed methods of teaching the particular branches and exploring all the lines of least resistance into the pupils' minds.

Thirdly, and more specifically, there is the history of education, a vast mine of information and ready made and thoroughly distilled experience, the most immediate use of which is, perhaps, after all, negative, viz, to prevent us from trying again educational experiments already made over and over again. The history of education, especially in Germany, is an old and well-worked laboratory of such experiments. almost

no record of which exists as yet in our language. Almost every conceivable device in teaching, almost every relation to state and church, all species of legislative enactments, every trick and device of illustration, have been tried and recorded in the large letters of actual experience. Furthermore, we know how the historic sense, once well developed in a department, finds precious knowledge hived away in the strangest places and how everything reveals educational aspects. Historic interest here is a new sense, revealing a new order of things almost unsuspected before. Indeed it is scarcely too much to say that the pedagogic standpoint is perhaps in the broadest sense the very best, highest, and most prospective for reading history in general.

Now the three matters already specified are surely in the main peculiar to the field of pedagogy, of great interest and importance to teachers, and might perhaps occupy half the course or less, treated either separately or all together. No one of these, however, is exactly central, but the prime and indispensable requisite and core of a science of education is a knowledge of the human mind deeper and more scientific than that furnished by ordinary intercourse with men, individual experience, or self knowledge, and not capricious and accidental like that. This has been so often reiterated by almost every authority in education since Pestalozzi's Book for Mothers, or indeed since Comenius' Orbis, that it is only stating our question in different terms to ask if there is any real and true philosophy of mind solid and certain enough to be made the basis of the most important of modern institutions, except at least the church. Two or three decades ago, or even less, this would have seemed to the impartial and competent observer a preposterous claim and does even yet in many quarters. Compare, as I have tried to do, the methods, ends, and order of education as indicated by the pietist Palmer, the Hegelian Rosenkranz, the Herbartian Ziller, the Schellingian Fröbel, or compare the common Hamiltonian, or Scotch, notion of the mind and its activities with that of Spencer, Whately, Stricker, Wundt, and the rest, or the latter among themselves, and it is disheartening to observe the often fundamental disagreement. So far and so long as philosophy was divided into sects or schools, teachers were quite right in their dread of being entangled in systems which were sure to make them, as Schopenhauer declares all are who think in systems, blind to all that opposes and lynx-eyed to all that favors them. But with the gradual decay of the system of absolute idealism in Germany, from which all English and American philosophy except the theories of association and evolution sprung, a new state of things slowly supervened. A broader sanity caused thinkers to cease to be ashamed or afraid or unable to be intelligible; and, to make a long story short, a feeling of solidarity and consensus has arisen among students of mind, each considering the other as an ally, cordially recognizing what he has done, and each content to contribute his item to a vast whole and not *fearning with the ambition of construing the universe from his own in-*

dividual vantage ground, the fruitful source of error and conflict. It is this movement which, in the language of Waitz, has saved philosophy. It is this which, as Lotze says, is so fast destroying the prejudices and false presuppositions which have so long preoccupied the field of both mental and educational science; and it is this which has made the present a day of philosophical renaissance in which more general interest and hopefulness centre about this field than ever before in this country. The Baconian method has just begun last of all to transform the methods of mental study, and the old systems of the heroic age of German speculation already seem like the pale landscape backgrounds of some of Raphael's canvases; not valueless nor all unlike landscapes in nature, but as conventionalized in their methods of representing the human mind as is the twining ivy as represented in the scroll-work upon an illuminated missal. Now this direction of philosophic study, none the less philosophical because sometimes resented by scientific men, culminates in education. The senses, memory, attention, the will, the psychic development of children, &c., much of which is of immediate practical utility, are made the subjects of a more careful and fruitful study than ever before. These mines are, to be sure, newly opened. Much of the material is widely scattered and must be laboriously gathered from sources as diverse as metaphysical journals, physiological, neurological, pathological archives, and there is much dross, but the new red gold is there and can be had for the sifting. Here lies the heart of pedagogy, as in the centre of a great but only peripherally explored continent. In this exploration the ideal professor of pedagogy should and easily could do original work by studying the faculties of children, active, passive, and at rest, and the various phases of their growth by inductive methods already suggested and fruitful, a more detailed exposition of which the writer hopes shortly to present. A cross section, as it were, of the adult mind is not what is wanted, yet such are most of the current treatises on mental philosophy. It is the fundamental law of mental development, as well of action and assimilation, that must be made the basis of methods of teaching, topics chosen, and their order. Almost no truth may not be as disastrous as a lie, if taught too early or late or wrongly, and almost no error may not be made salutary if all these are in its favor.

In this most central position, then, a firm corner-stone is now laid for scientific pedagogy. It is true that psychology begins in tact and sympathy, but it ends in anthropology, one of the richest and broadest fields of research known. It is true that genius is born, not made, in pedagogy as elsewhere; but it is also true that anxious study of the material upon which they work is needed, as well as a whole repertory of instruments and methods, for those who would work upon mind or upon the brain, the most complex of all the tissues woven in the loom of time. It is often true that a little pedagogy is a dangerous thing, but so is a little knowledge of every art or profession, while deep down below our

successes or failures as teachers lie certain causative psychological principles, to know which would be to control them. As the great educational problems, most of which have been only provisionally settled, open broader and deeper one after another, as they do in times of educational awakening, what shall be included in our curricula and what time shall be given to each; what is the educational and practical value of each; how shall school work be unified, so that mere contiguity shall not be mistaken for real logical affinity, so that we may secure, at least to a degree, harmonious development in these days of accident and casually competing specialties—these and many such wider problems can ripen to full maturity only in an atmosphere charged with philosophic insight and the accumulated experience of the centuries. The effects of these studies upon the teacher are not often remarked by the casual observer, but they increase his inner life; he loves to grow mentally as well as to foster growth; slowly and silently they increase his potency and his earnestness, lift him above petty expedients and reliance on short cuts and patent methods, and perhaps best of all, secure a professional spirit.

Fifthly, and in a sense more fundamental, are the bearings of ethics on education. There has been much freshened activity in this field, of which I have left myself no time to speak here. The notions of duty and freedom have been deepened and cleared up in a way at least prophetic of new advances. This is likely to have a very practical bearing in the new movement (one of the most interesting at present in the whole field of education) to introduce moral training of some sort into the schools as a public need. As all the practical questions of intellectual education centre in psychology, so most of the wider and deeper problems of character, the relation between morality and mental culture, the relation of the school to state, church, home, and all the ethical goods or values which make life fit to be lived—these centre in ethics, which is fast becoming a necessity for the practical teacher.

Each of these five tendencies, especially the last three, is at present far more cultivated and further developed in Germany than in this country. This needs to be boldly and distinctly said, despite the suspicion of want of patriotism, Teutonic affectation, &c., so liable to arise. There is in that country a great body of comparatively recent educational literature of a very high order, only a very small part of which is to be found in the alcoves of any library in this country. Indeed, I am almost ready to say that for one I see no greater and more imperative need in our educational field at present, except southern aid, than one or more exhaustive educational libraries, and perhaps museums, and a few men who have the will and the ability and are secured the leisure to work it up and over, slowly and carefully, critically adapting it to the needs and bringing it to the knowledge of our best teachers and those who intend to teach, as a few professors of pedagogy could do if their chairs stood upon a proper basis. Their function should be in part a public one. Great

as is now the mechanical, material, organic perfection of our schools, greater probably, averaging large sections, than in any other part of the world, we still need a better study of methods than our normal schools are yet prepared to give or their pupils to receive, while graduates from colleges who wish to fit for superior teachers have no training suited to them. The great danger of superintendents, supervisors, &c., is that they will be absorbed by the business, managerial functions, and neglect giving their chief attention to the central and most essential studies which alone can make their work professional.

Chairs of pedagogy ought to help the institutions which establish them, especially in the department of mental philosophy, now often so poorly taught in colleges that it must be justly held in part responsible for our backwardness in applying mental laws to education. It is not improbable that the establishment of such chairs might be felt in other departments of college teaching, in stimulating increased interest in methods of instruction.

But we have dwelt too long upon snakes in Ireland, upon our ideal pedagogist, who does not yet exist. It is time to remember that there are practical difficulties to be overcome of a somewhat serious nature. First, where are the men to fill these chairs? Some of our college presidents and trustees, it is to be hoped and believed, have already taken up the lantern of Diogenes, and are sincerely searching for men, but are of course not unmindful of the fact that unwise, incompetent men might do harm, while only fairly good men might distil mediocrity and dignify commonplaces. But there is the same trouble in other departments, and especially in every new one, while young men are appointed every day more for their promises than their performances. The colleges could give opportunity and stimulus, while youth and enthusiasm could be safely trusted to soon do the rest. Appointment to a college chair is, ought to be, only the beginning of a life of research and growth, and so far as our colleges are serious in encouraging original work might they not, for the same academic reason, encourage fresh studies in such new and promising fields?

The objections that such chairs would interfere in any way with the work of normal schools and that there is no demand for higher training than they are giving and the lack of funds for new professorships so commonly pleaded were briefly considered and the speaker concluded as follows: If teaching is to become a profession it is superintendents and supervisors, &c., who must first make it so, by becoming, as their high position demands, strictly professional themselves in their work. It is they who have most interest in making education a science and teaching a profession. It is movement in this direction that is to establish the system of superintendency in those many communities where the question respecting its utility has now been opened. It is they whose urgency and perhaps petition and agitation might perhaps be instrumental in establishing such chairs in some needed places. The very existence of

a large body of superintendents like this, upon whose shoulders rests a vast and increasing though all too often unrecognized power—not so far less than that of yonder august legislative bodies, to the far historic ken, in shaping the America of a generation hence—this body, its needful dignity and power, its practical needs, constitute the strongest and most urgent argument in favor of professional pedagogy.

The Department then adjourned to meet in the same hall at 8 P. M.

SECOND SESSION—WEDNESDAY EVENING.

WASHINGTON, *March 22, 1882.*

The second session of the Department was held at 8 P. M. After calling the meeting to order, Mr. STOCKWELL, the president pro tempore, stated that the evening would be devoted solely to a discussion of the subject of national aid to education, and introduced Rev. A. D. MAYO, who spoke without notes as follows :

MR. PRESIDENT AND GENTLEMEN OF THE CONVENTION : It is a great comfort when speaking upon any such matter as we have in hand to feel that you are talking to people who need no preliminary, who understand all the fundamental arguments for education, and who are thoroughly competent to supply themselves with all the rhetoric and eloquence which it may be necessary to display on such an occasion.

I suppose you have asked me to speak to you to-night, not because I am a teacher, for I am not a teacher, but because during the past two years, engaged in what I may be permitted to call a ministry of education through the Southern States, I have had some rather unusual opportunities for observation in that part of the country. I shall return your compliment by speaking to you in the plainest manner, giving a plain, unvarnished tale, indicating to you some conclusions which have been forcing themselves upon my mind in connection with this most important subject.

The first impression which has been made upon me in this matter is that the great need of the Southern States to-day is a system of elementary education ; and when I speak of a system of elementary education I do not refer to the old-fashioned district or city school, a clumsy machine for teaching the three R's, but I mean our modern idea of elementary education, the new elementary education, the school that takes the child from the age of five or six to twelve or fourteen and carries him through a proper elementary education which fits him to go forth at that time armed with the powers of citizenship ; and this new elementary education, as we see it now all over our country, bears about the same relation to the old-fashioned elementary education that the limited express train on which our brother Hawkins came to-day from New York bears to the old family chariot in which George Washington jolted to New York to take his oath as President of the United States.

It is this new elementary education, with the training of teachers com-

petent to enforce it, which is the great and crying want of our Southern States to-day.

Now, as I look over the South, I see that there are three classes of people, and each of them in a special way is to be benefited by this kind of education. First comes the great mass of the children of the freedmen, and elementary education in their case means to them a great deal more than it can mean for an average white child in this country, because the negro is the latest comer into society. Every white man has a thousand years of race culture behind him; the negro has at best but two hundred and fifty, and therefore elementary education for the children of the freedmen means, first, the formation of the educational mind, the building of the foundations on which instruction can be reared in the average colored child. It means education in a thousand things which in a well regulated community the teacher is hardly supposed to meddle with: education in manners, morals, and everything that goes to make up the fundamentals of our ordinary American life; and this work I consider the most difficult, the most arduous to be done of any work of teaching that is now going on.

Then we come to another class, the children of the ignorant white people in the South; and yet we shall make a great mistake if we think these unlettered people are a stupid people. They are chiefly of English-Scotch or Scotch-Irish extraction. Out of that class have come many of the ablest men in southern life. They have been educated by an experience in life which is remarkable and which has done great things for them, and these children are perhaps as well prepared for taking the elementary education in its beautiful new methods as any children that ever walked on the face of the earth.

Then comes the class of children which must awaken the compassion of every one who knows of them, the great multitude of children of those who twenty years ago were among the most wealthy people in the South, now reduced to utter poverty, so that unless some aid were extended to them multitudes would grow up in absolute ignorance.

Now there are these three classes, the freedmen, the children of the ignorant whites, and the destitute children of the old cultured class; and they all need this foundation of elementary education; and the people who have charge of the academic education and the collegiate education are coming fast to see that this education is their only safety. There are as many of these institutions now as the South ought to have for the next fifty years, and for lack of this elementary education these academies are compelled to do mere primary school work, mere grammar school work, by taking children at fourteen or fifteen who are in about the condition that children should be at ten or twelve. Right along with this comes the training of a body of teachers competent to do this work, and the material is all at hand through the southern country. The girl that was born the year that the war closed is to-day a young lady of seventeen. Since the close of the war a whole generation

of these boys and girls has come up in the South ; and especially is it true that the South is full of the daughters of powerful families who are longing for the education which shall enable them to go forth and become the teachers, not only of the white but of the colored people.

Now I need not say that there are peculiar obstacles to doing this good work. One great obstacle is the amount of ignorance ; another obstacle is one we do not appreciate ; it is that nine-tenths of the people of the South never saw what we call a good public elementary school, such as can be seen to-day in Charleston, and it is owing largely to this fact that there is so much holding back among the people when you speak of public graded schools.

Then come other obstacles. One is the indisposition to taxation.

Then we must remember that the war in the South left society cut up. It has left a great heritage of bitterness between this people, so that it is very difficult for the people to get together and work together, forgetting each his own crotchets and his own notions.

Then there are physical obstacles and the sparse population of the great country. Then there is the race obstacle ; and then there is this, the crowning difficulty : the difficulty of getting hold of enough money to do anything in any part of our southern country.

The school public, the free public school public, that I meet in all the Southern States, composed of superintendents, of teachers—this school public is one of the most forcible, most enlightened, and most determined body of people that ever got on foot in the United States of America. It may not be the majority of the people, but it is composed of that material that makes a majority if you only give it a good chance. Now, this school public, in such a spirit of self sacrifice as I never witnessed anywhere else, is trying to plant this system all over the South, and I could spend the whole evening in telling you the most affecting stories of labor performed, of the noblest people giving their time and their life like water to do this thing. Now, this public is trying to do this thing, and the great difficulty just now is the lack of money to do it. The great majority of the people believe in this elementary education by the State. The school public is a very enlightened and determined one, and they take all they can get from the people and do the best they can. But these school authorities have just enough money to make a school that is satisfactory to nobody in the town. The roof is on fire with the blaze of ignorance, and this people have a ladder that reaches about up to the second story window, and they are expected to go and put out the fire ; and there is the trouble : just money enough to inaugurate a public school system, break down the old system of academical instruction, and not enough to give anything that is a substitute such as the leading class, on whom the schools must depend for success, will support.

Now, this is the great thing : we need, we want national aid in order to enable the school authorities all through the South at once to put the

thing before the people, to show it to the people who never saw a first class public school, to show it in a way that will conquer opposition, that will persuade the people themselves to take up the work and never let it die. I have seen some of the most interesting cases in which the establishment of a school of this kind has completely satisfied a public that has been fighting against it for years.

If you can only give those friends the money to put before the people a real public school as an object lesson, the battle is won, and if you can do that for five or ten years, as this national aid proposes to do, the work will be done, so that at the end of that time every Southern State can be left to have its own system of education as thoroughly as any State in the East or the West.

Now, friends, how do we want that aid? In the first place, we want it now. This matter is urgent. Don't you see that if you let a generation of these children grow up, it is going to be all the harder to deal with this question; and don't you see that every child that you catch now you not only send that child out a better citizen, man or woman, but you send that child out determined that his child shall be better educated than himself?

Another thing is that we want money *enough* at once. What you want is something decisive which will enable the school authorities to plant a good school and let the people see it one year.

There is no more miserable economy than to be stinting your appropriation for a good work.

It seems to me that if for ten years a generous appropriation could be given to our Southern States the work could be done. You only aggravate the evil if you fail to do this. So let us have the work done now, and let us have enough to do it in a generous and effective way.

Let us give this money to the southern children and youth through the regular channels.

Any such thing as putting into these States a supplementary supervisor of schools, with a salary of \$3,000 or \$5,000 a year, I believe would defeat about all the good effects of the distribution through these States, for this man would be a bigger man than the State official. I don't care if two brothers were appointed, they would inevitably get into quarrels in trying to do this work. Two good men are too many to do any one good thing. Then, again, the expense would be from one to two hundred thousand dollars a year, as much as the Peabody fund has to-day, to put into every State of this Union a new Government officer. Then, too, we must remember that anybody that desires money from Uncle Sam must work for it. The Congress of the United States only does what it is compelled to do by the voice of the people. Let us go home and wake up the people in every State to demand that our servants at the Capitol shall give out of the present abundance of the nation's treasure house money enough, and at once, under fit safeguard and

supervision, to stem this flowing tide of ignorance and help our brethren in the South in their present heroic effort to help themselves.

A presentation of the subject of national aid from a northern standpoint was then given in the following address by DEXTER A. HAWKINS, A. M., of Newark, N. J. :

NATIONAL AID TO STATE COMMON SCHOOL EDUCATION.

I am requested to present the views upon this point generally held in the Northern or old free school States.

It might be supposed that the States that have from the beginning established and supported chiefly by public taxation a system of free public schools sufficient for all the children within their borders would be opposed to national aid to common school education. But this is not the fact. They look upon the people of each and all the States as fellow-citizens and brethren. They consider them all individually as members of one family. They look upon the whole country as one body of which the respective States and the citizens of each State are members.

In the natural body, whenever any one member is weakened, diseased, or disabled, the whole body suffers. Every other member necessarily loses some of its force and vitality and vigor. If one leg is gone, the other leg has double duty to perform, and it cannot enable the body to accomplish as much as though both legs were sound. If one foot or even one toe is diseased, it has a similar effect, and the whole body is either wholly or partially unfit for service. The same is true in the political body. If one State is weakened and its vigor and powers emasculated through the illiteracy of a great body of its inhabitants, that affects not only the nation as a whole, but every other State in the Union, and the people of every other State.

The underproduction of an illiterate State, the inability of its people to meet their individual debts, and of the State to meet its State debt (resulting from this underproduction of its citizens), cause annually loss to the citizens of every other State and injury to the credit of every other State and to the good name of the community.

The old free public school States are careful students of history. They look to the past for guides in the future. They find that in all ages and in all civilized countries the governing class has been, is, and must of necessity be an educated class; else the government cannot be either good or permanent. The very inherent nature of man and of government makes this principle constant and universal.

In this country the governing class is the entire body of the people; hence the education of the entire body of the people is an essential means of securing good and permanent government.

Education to be universal must be secured and enforced by laws *that reach* every individual. It cannot be left to minor authorities or organizations.

In the Republic of Sparta, twenty-eight hundred years ago, these principles were understood by Lycurgus, and the child of every citizen was educated at public expense and required to be so educated. In Athens, under the laws of Solon, five hundred years before the Christian era, the children of all the citizens were educated and required to be educated.

These two little free states ruled and controlled the whole of Greece; and Greece for five hundred years ruled and controlled the shores of the whole Mediterranean. It was not her physical force that did this, but the power of her intelligence. At the siege of Syracuse the Greek mathematician brought down to his aid the fires of heaven, and by concentrating the rays of the sun upon the enemies' machines of war burned them. The old Grecian republics to-day, through their literature, are one of the great powers in civilization and free government, though they ceased to exist as independent nations nearly two thousand years ago. Their philosophers, their poets, their historians, and their orators still instruct and delight us.

In the eighth century the great Christian Emperor Charlemagne required the children of all persons participating in the government to be educated, in order that intelligence might rule his empire. The power of intelligence thus developed, held and controlled by him, enabled him to unite and consolidate the whole of Western Europe.

In 1530 Martin Luther, at Geneva, made education obligatory upon all, and to-day the twenty-two cantons of the Swiss Republic, by more than a two-thirds vote, enjoy the beneficent influence of that law of Luther. In 1560 the Duchy of Orleans, by act of assembly, made education compulsory, and parents were bound under heavy penalties to send their children to school. In 1571 the states of Navarre made education obligatory upon all. In 1649 Württemberg made attendance at school compulsory, and punished non-compliance with fine and imprisonment.

The chief claim that the great Austrian Empress Maria Theresa has to immortality in history is that, more than a hundred years ago, she established public schools for the education of the children of her empire and required them to attend.

In 1773 Saxony made education compulsory upon all to the extent of ten years' schooling. In 1804 the attendance was secured by heavy fines and penalties, and to-day, we are informed, there is not a child of the school age in the whole of Saxony that has not attended school.

In 1795, as soon as the first French Republic was organized, education was made secular, universal, and compulsory. On the return of that country to monarchy, this was abolished. The present French Republic has established universal education and made it compulsory; hence the great prosperity of France, after losing, ten years ago, a thousand million dollars in gold and two provinces, with nearly two millions of her people. If they stick to universal education, their re-

public will endure; if they give it up, the republic will go under, as a monarchy of some kind is the only fit government for an ignorant people, and the more ignorant, the more despotic it must be.

In 1807, when Napoleon the Great had stripped Prussia of her territory, her wealth, and her power, and reduced her to a mere impoverished province, William von Humboldt, the brother of Alexander von Humboldt and minister of public instruction, presented to the King a scheme for the establishment of universal compulsory education, and assured him that through the education of its people Prussia would recover from her misfortunes and obtain and maintain a leading and controlling position in Europe. The King adopted the scheme, and Prussia ten years ago vindicated the wisdom and foresight of Humboldt.

As a race, the Hebrews especially excel in the education of their children. An illiterate Hebrew it is difficult to find anywhere. Hence the wealth, prosperity, and influence of that small people; and hence their oppression and expulsion from the country by the ignorant semi-barbaric Slavic races of Southern Russia.

Between two and three thousand years ago Confucius and Mencius established schools throughout China, and education in the Flowery Kingdom became universal. For centuries, under rigorous civil service regulations, none but the educated have been permitted to hold office under government or participate in it, until to-day an illiterate Chinaman is scarcely ever to be met. As a consequence, they have maintained a regular, orderly government for several thousand years, they support more people to the square mile than any other nation, and maintain a population equal to more than one-third of that of the entire globe. They seldom engage in foreign wars or interfere in the affairs of other nations. On this point Washington might have learned the wisdom of his farewell address from them.

When the early settlers came from England to this continent, two hundred and sixty years ago, they intended to establish here a free government, "a government of the people, for the people, and by the people," to use the perfect words of the immortal Lincoln, and as an essential condition precedent to the continuance of such a government they immediately established the public school.

In New England and the rest of the Northern States the school kept pace with the children, the intention being that no child should be allowed to grow up without ample opportunity to obtain a good common English education. Common school education is the key to the sobriety, industry, tenacity of purpose, and prosperity of the inhabitants of the Northern States. In 1642 the Colony of Massachusetts Bay not only established free common schools, but made education compulsory upon all children. Five years after, 1647, severe penalties were provided in case parents did not send their children to school.

In 1650 the Colony of Connecticut followed the example of her elder

sister, and not only established the schools, but made education compulsory upon all, until now it is extremely difficult for a native-born child to grow up in those two States without an education. The school officer ferrets him out and compels him to attend school unless he is being educated at home. What is the consequence? The people of Massachusetts and Connecticut excel in intelligence, in accumulated wealth, and in annual production, notwithstanding their barren soil and cold climate, those of any other States. Their few illiterates are mostly foreigners. The first six hundred immigrants that landed in Massachusetts contained thirty graduates of Cambridge University, England; and the intelligence of those thirty gentlemen, from the day they landed on the bleak shores of Massachusetts Bay until the present time, has continued to shed blessings upon the inhabitants of the Old Bay State. The people in the North believe in education; they believe in it everywhere, and on all occasions, and for all people. They are not only ready to educate themselves, but they are ready to help educate every child in the country who cannot obtain an education without their aid.

We in the old common school States believe in free government and universal suffrage. We believe the ballot is essential to the protection of individual rights.

When the four millions of negro slaves were delivered from bondage, the North insisted on giving them the ballot, in order that they might peaceably protect themselves. It was either the ballot or the bullet; and so low is the standard of political morals in this country that whatever class is not endowed with the ballot will have to submit to imposition, brutality, or expatriation unless it protects itself with the bullet.

The free school States, having endowed the four millions of ex-slaves with the ballot for self protection, are now, for the safety of the Republic, under the necessity of securing in some way to these ignorant voters, and to the half million of illiterate white voters in the South, an education sufficient to enable them intelligently to participate in and maintain in the Southern States a republican government. With ignorant voters, there or anywhere else, a free democratic republic is simply an impossibility. The illiterate vote must and will in some way be neutralized.

Napoleon's theory was that democracy with ignorant voters, in order to escape the ruin to society resulting from the rule of ignorance, necessarily and inevitably ended in some sort of despotism, usually military despotism; and all history shows that he was correct.

The Northern States being fully and firmly committed to free government, are hence fully and firmly committed to universal education as the only means of sustaining and perpetuating the blessings of free government. A few years ago the illiteracy of nearly one-half of the voters in one part of the country almost precipitated upon us a second civil war. It was avoided only by the patriotism and forbearance of the leaders of the two great political parties of the country. The free

school States do not wish to have free government run such a risk again. Unless we educate the voter, a similar crisis may recur every four years. The South came out of the war thoroughly impoverished yet it to-day taxes itself more heavily, according to its property, for public education than does the North. But the money thus generously raised is wholly inadequate. If left to their own private resources it will take them a century to reach the safe point for free government hence the old free school States are thoroughly alive and in earnest in favor of national aid to public education and its distribution according to illiteracy until the several States shall be able to get along without it. We precipitated four millions of ignorant citizens upon the cotton States; we feel that we owe it to ourselves and to them to help them in educating this mass of ignorance and fitting these four millions of people for the rational enjoyment of the legal rights with which we have insisted upon endowing them.

Slavery impoverished the South; it helped to enrich the North; for we enjoyed the advantages, if there were any, flowing from it, without the curses. The South now experiences the curses of its former condition, to wit, an illiterate and improvident population, without any of the advantages. Hence, common honesty, common safety, as well as common humanity and patriotism, call upon the North to advocate temporary national aid to public education, and the distribution of the money according to the number of illiterates in each State.

Since the year 1865 the people of the free school States have, by individual contributions, sent over a million dollars a year to their brethren at the South to aid education. It took years to stimulate the desire for knowledge among the ignorant and inert masses, and to get them, as a body, in condition to receive educational aid on a large scale to advantage. They are now hungering and thirsting for schools, and ask us from the national abundance to aid them.

They have over five millions of children of the school age, and raise ten millions of dollars annually to educate them. The rest of the Union has ten millions of children of the school age, and raises sixty millions a year to educate them. We can pay sixty millions as easily as they can the ten, because our labor is now and always has been educated and productive. They have, according to the census of 1880, 4,804,171 children above the age of ten who are illiterate, while we have only 1,435,787. Hence, to save free government from sinking under this weight of ignorance, a weight which we aided in throwing upon them, they need a larger amount of money (and need it now) for education than they at present are able to pay. When once they are helped over this present difficulty they can take care of themselves. The annual loss now to these States through the illiteracy of their laborers is more than double the whole cost of their present public schools.

A few years ago the Commissioner of Education made an investigation into the character, condition, and productiveness of the laborers

in all the great centres of toil in the United States, including every kind of labor, from the rudest and simplest to the most skilled. A series of questions propounded to the employers brought out the information required on all points. This information, generalized and reduced to a scale (assuming the illiterate laborer as the unit), gives the following instructive results: Considered as a mere machine of production, the laborer with a common school education will, on the average, produce annually 25 per cent. more than the illiterate; if he has an academic education he will produce 50 per cent. more; and if a collegiate education, 100 per cent. more.

Now, according to the census of 1870, there were in the southern part of our country about one million one hundred and forty-seven thousand (1,446,667) illiterate male adults. Putting the annual product of an illiterate laborer at the minimum sum of \$100, which is far below the average, the annual product of a laborer with a common school education would be \$125. Then these one million one hundred and forty-seven thousand illiterate male adults in the South, had they received a common school training, would produce annually \$25 apiece (or \$28,675,000) more than they now do. This is more than double the whole amount spent there on public education, which in 1879 was \$12,181,602. The loss to the country through the inefficiency of illiterate labor is but a small part of the actual loss from illiteracy, for an examination of the statistics of the whole country, as given in the census of 1870, shows that the illiterates produce thirty times their proportionate share of paupers and ten times their proportionate share of criminals.

The annual expense in the city of New York alone entailed by the pauper and criminal classes, in supporting the one and protecting society against the other, is five millions a year.

I have not been able to ascertain the annual expense of supporting the paupers and protecting society against the criminals in the Southern States; but if it is one-half as great, according to the population, as in the city of New York, it would be over \$25,000,000 a year. Now, it is calculated by experts in social science that 96 per cent. of pauperism can be eradicated by education, and that at least one-half of the crime in the community can be prevented by education.

In the Grand Duchy of Baden, with a population of a million and a half, they reduced the number of paupers 25 per cent. and the number of crimes 51 per cent. by enforcing a thorough system of universal education for the space of seven years, 1854 to 1861.

If pauperism and crime in the Southern States were reduced to a minimum by a vigorous enforcement of the education of all the children to the extent of the course of study in our common schools, it would produce, then, an annual saving to the community in the pauper and criminal expenses of fifteen millions of dollars. This, with the gain of over twenty-eight millions a year in the increased production of the laborers through educating them to the extent of the curriculum of the free

common school, would give an annual increase of production and saving of expense equal to forty-three million dollars.

This is the financial gain in that part of our country alone to be made through universal education in the elementary branches. If this were done, the South would be amply able to support as complete a system of free common schools as there is now in the State of Massachusetts; and with an enforced attendance, by a compulsory law, of every child that is of the school age, so as to eliminate from society in the future the illiterate adult, it would no longer be afflicted with the evils and threatened with the dangers arising from ignorant suffrage. It would be able, without difficulty, through the increased productiveness of its labor, to pay, in a very few years, not only the interest, but the principal, of all its State debts; and individual solvency would be so universal that every merchant who traded with their people would be able to collect promptly the pay for his goods.

The South now, through the illiteracy of its people, and the consequent deficiency in production and in accumulated wealth, pays but a small portion of the national taxes.

If by giving them out of the national treasury, for ten years, a few millions of dollars a year to aid in public education we can eradicate illiteracy, and as a consequence reduce the pauper and criminal expenses as well as make their labor efficient, they will in a few years be able to return the money to the national treasury in the increased amount of national taxes they will pay by reason of the increased annual production and consumption and accumulated wealth of their people; so that, looked upon as a financial investment merely, the people of the old free school States think that national aid to public common school education, for a limited period, is the wisest and best use that Congress can make of a portion of the public money.

Many millions are appropriated for internal improvements; the power to do this in the Constitution is no clearer and the necessity much less than the power and necessity to appropriate money from the national treasury in aid of common school education. The internal improvement resulting from ridding ourselves of four million eight hundred thousand illiterate youth by educating them is infinitely greater than ever did or ever can result from the building of Government roads, canals, or railroads, or from improving rivers and harbors.

If the bill in aid of public education now before Congress (appropriating fifteen million dollars for the first year and decreasing the amount by a million every year until at the end of ten years the whole appropriation ceases, and distributing the money to the States according to the number of illiterates in each by the census of 1880) becomes a law, the old free school States will receive a reasonable share of the money, for the immigrants that have been pouring into the country for the last twenty years—last year to the extent of three-quarters of a million—*have nearly all settled in those States; and among those immigrants is a*

large body of illiterates. The whole number in these States (chiefly foreign born above the age of ten years) according to the census of 1880 is nearly a million and a half, and the number of illiterate adults is half a million. The proportion of this money that we shall receive will be sufficient to go far toward eradicating this illiteracy, and hence every dollar given to the North will return in the end many times to the public treasury through the improved condition and capacity to pay taxes in the future of the million and a half illiterates.

Therefore, in whatever light we look at the question, whether as a mere matter of dollars and cents, a matter of humanity, of civilization, of free government, or of mere duty to our brethren, it seems to us at the North to be a wise, a patriotic, and a practical measure of relief, not only to the Southern States, but to the whole country, to appropriate this money at once, and distribute it under the supervision of the Bureau of Education from year to year, while the treasury is overflowing, so as to bring the whole country, North and South, East and West, up to the very front rank of public education, intelligence, industry, and thrift.

The whole southern part of the educational map of the country presented in the first volume of the census of 1880 is covered with black, threatening clouds. Let us clear up our southern sky, and illuminate it with the bright sunshine of universal intelligence, before the storm that mutters at every election bursts upon us.

At the conclusion of this paper Hon. J. L. M. CURRY, LL. D., agent of the Peabody education fund, was announced as the next speaker. He thought it best to say nothing. Calls for remarks from him being repeated, however, he consented to address the meeting, and after adverting to the difficulties of his situation caused by the lateness of the hour, he proceeded to speak extemporaneously as follows:

There are two postulates which must necessarily be assumed in this discussion, which, of course, I shall not in the slightest degree elaborate; and the first is that intelligence and integrity are the basis of free representative republican institutions. Such was the opinion of the fathers, as could be easily substantiated by most numerous citations. As was expressed in that admirable paper (Professor Hall's) this morning, education is fundamental to the right discharge of the duties and functions of American citizenship. We should regard it as the greatest dereliction of duty if the scions of nobility, those who are to be kings and emperors and to wear crowns, were not trained and disciplined in early life for their civil and political duties; and it is but little short of treason, in my humble judgment, for those who are charged with responsibility in this country—a government, as Mr. Lincoln epigrammatically and forcibly expressed it, “of the people, for the people, and by the people”—to neglect the education of American citizens. Universal education, to my mind, is a *sine qua non* for the security and the prosperity of this Republic.

My next postulate is that this universal education is the work of government, and must be furnished in large measure by government action and government revenues. Universal education, in the first place, is the right of the citizen; but in the second place, and more immediately connected with the discussion of our subject to-night, it is an imperative duty. I am only stating a truism when I say that there is not a single instance in all educational history where there has been anything approximating universal education unless that education has been furnished by government. These are the postulates on which I build this brief argument.

Now, if universal education is a right and an imperative duty, my next proposition is that this primarily is the work of State governments. In our complex and federative system, States lie nearer to the people than does the National Government. All the interesting relations of life, husband and wife, parent and child, master and apprentice, guardian and ward, teacher and pupil, are relations with which the General Government has nothing to do in the first instance, but are peculiarly and specially, as every lawyer knows, within the province of the State governments; and, therefore, I hold that primarily and chiefly it is the duty of the States to furnish this education. The Northern States boldly and courageously have undertaken the work, and grandly and nobly have they performed it. The South now is following the example set. In every Southern State there is upon constitution or statute book a system of public schools modelled after the best examples of the Northern States and of European countries. Schools have been established under this system. Those schools are alike open to the white man and to the black man, to the late slave and to the late master. I do not mean that these are mixed schools; I mean, however, to assert with emphasis and positiveness that from Virginia to Texas, inclusive, precisely the same educational rights and the same educational privileges are granted to the black man as are furnished to the white man. What I have said, that the schools are open and the school money distributed upon a basis of absolute equality so far as white and black children are concerned, marks a most marvellous revolution in the history of this country. I wish I could get you to realize it. I can hardly conceive of any revolution in public sentiment, in manners, in customs, in habits, in laws, in institutions, so profound as the revolution which has taken place in the new South in the last eighteen years in reference to the public schools.

Much remains to be done. The laws are upon the statute books. A vast deal has been accomplished; but in school-houses, apparatus, school attendance, school enrolment, proper teaching, school revenues, there is a great deficiency, a very great deficiency. I need not tire you with statements after the elaborate and conclusive paper which has just been read in your hearing. What I wish to impress is that to make these schools at the South adequate to the need is a stupendous enter-

prise, not to be dealt with summarily or by temporary expedients, but by wise and liberal legislation. To the patriot, the Christian, the humanitarian, the illiteracy is absolutely appalling, and if I had a stronger word to use I should be glad to use it now in order to express the magnitude of the danger. What is vital to the subject that we are now considering is that it is impossible for the Southern States unaided, however willing they may be, to grapple with this gigantic problem. The difficulties have been suggested in part by Professor Hall—difficulties which are not realized by those unfamiliar with the habits and the people of that country. At the North population is dense; I believe about one-fifth is in cities and towns. In the South, in the rural districts, settlements are remote, communications are infrequent and imperfect, and the people very different from those in other sections of the country. Slavery sparsified population. Slavery concentrated wealth in a few hands. Slavery prevented the division of wealth among the people. Slavery created an aristocracy. Slavery made a public school system with free and universal education impossible. Thank God! slavery is gone and the negroes are irrevocably free! I never made an expression of gratitude with more sincerity than I made that declaration just now; and I beg you to remember that while I am accounting for the absence at the South of free public schools, and while I am pointing out some of the difficulties with which this question is environed and trying to deduce an argument of national obligation in consequence of this condition of affairs—I beg you to remember that the South did not introduce slavery into this country. It does not lie at her door.

Again, the South has been impoverished. It was not a poor country before the war as to aggregate wealth, but the wealth was in the hands of comparatively few; and as the result of the war the South has been impoverished. Will you just think of it for a moment, that you may take in that fact? I am not speaking of the loss of four billions of property on account of emancipation, but I wish you to consider that at the close of the war the negro himself possessed nothing but physical health and freedom, while among the white men banks were gone, insurance companies gone, all investments swept away, personal securities and negotiable notes valueless, labor disorganized, a new civilization introduced, and what had been regarded as the basis of wealth of the population of the future was all buried in one profound Serbonian bog. Reconstruction has not been easy; and I will whisper into your ears a secret which you may not have heard, that many of those who were there to reconstruct were not angels or saints made perfect. To reconstruct the government, to put back the cars which had been thrown off the track, was not by any means an easy work, but has required great courage, heroism, and patience.

I said a moment ago that the States of the South have put upon their statute books school systems. I think you would delude yourselves if you concluded that school systems because upon the statute

books are fixed or self operative. Please recall what my friend has so well spoken of, that those of us who have been friendly to the establishment of public schools have not been numerically the majority of the population of the South; that we have been waging a war against habits and traditions and the convictions of years, and, what is worse still, against this mass of unappreciative illiteracy which does not know its wants, and against what Lord Castlereagh styled the "ignorant impatience of taxation."

An increase of school revenues at the South cannot reasonably be expected. Much as has been done, it is not prudent or safe to risk public schools upon heavier taxation. To establish and to sustain are two different things. You may introduce and proclaim a constitution without giving it life. Probably there is no influence more potential on a people than the influence of the past. It is no easy matter to eradicate habits, traditions, and prejudices, the slow growth of centuries. It is supremest folly not to take account of the past. The ideal is not always the practicable. France in 1793 adopted a democratic constitution, but she foolishly forgot the centuries of monarchical and ecclesiastical despotism that lay behind. Our school systems are in antagonism to habits and traditions, and to save them and to save the Republic the General Government should give immediate and adequate aid. The discharge of an obligation belonging primarily to the States being impossible, if universal education is to be secured at all it must be by national aid.

If I were speaking before Congress or to congressmen, I believe I could demonstrate the constitutional potency of Congress to meet this evil and provide a remedy for this peril. My distinguished and able friend at the head of the Bureau of Education, among his other valuable labors, has demonstrated in a conclusive argument the power of this Government to render the national aid. The lawyers have a maxim that "the safety of the republic is the supreme law." Things are done in a time of war which the Constitution does not in terms authorize. In extreme and imminent peril, powers unusual are assumed. The question is whether this Republic is not in more peril to-day than it ever was from armies and navies arrayed in antagonism to it.

The New York Herald the other day had an outline map of the United States with the rivers all stained and blackened to represent the inundation of the great Father of Waters. A map to represent the inundation of ignorance would be more fearful and terrible than that map was; and if Congress can legislate and make an appropriation for the relief of the destitute and the suffering, how much more can Congress make an appropriation to preserve this Republic and transmit it unimpaired to those who are to come after us? I said I would not stop to argue that constitutional question, and I shall not. I place it simply on that old maxim which no one can dispute, that "*the safety of the republic is the supreme law.*"

Hopefully, sanguinely, joyously, I look forward to and anticipate the future, and yet that man is a bold speculator and a daring prophet who says that a republican government has been established beyond the possibility of failure or destruction. Is the Republic in peril? I borrow the lucid and terse language of the paper to which I have referred when I say that the life of this Republic is one persistent, incessant struggle against ignorance. This illiteracy is due in large measure, not entirely, to the negroes, the colored people. They are not culpable for it, of course; and I hold that the Government which had power to liberate them, to citizenize them (if I may make a word), to enfranchise them, has the power to qualify them for freedom and citizenship. I quote the language, and I rejoice to quote the language, terse and truthful, of one of the most distinguished men of this land, that "slavery is but half abolished, emancipation is but half completed, while millions of freemen with votes in their hands are left without education."

Illiteracy on the part of the black man is no worse than on the part of the white man. Illiteracy is illiteracy; an ignorant voter is a peril to the perpetuity and the prosperity of our free institutions, whether that ignorant voter be a white man or a black man. Forty-five per cent. of the voting population of the South is illiterate. Three-fourths of the power in Congress to make laws may be in the hands of this illiteracy; I mean, of course, three-fourths of a majority. Illiteracy of such a multitude of white and black voters is a standing menace to free institutions; is a present, pervasive, potential peril. Elections by such men are a farce, if not a tragedy. Men vote as machines, and not as intelligent Americans. The voter is the pliant tool of the demagogue, who bids lower at each succeeding election, appeals to baser passions, and attempts more revolutionary, agrarian, communistic schemes. Whiskey and money are more influential than patriotism and reason. Justice, plighted faith, vested rights, immutable principles of truth and honor, go down before the fiery breath of the passionate and conscienceless multitude.

Universal suffrage necessitates universal education. Universal suffrage is not a panacea of all national ills; it is not always good government. In France it comported with Cesarean absolutism. Coupled with a plebiscitum it was the willing ally of official candidature and Napoleonic perfidy. It is a degradation of the franchise to give it wholesale into the hands of ignorance, superstition, and pauperism. Lord Sherburne calls such lowering "the apotheosis of brute force," "the substitution of numbers for the decisions of intelligence and experience."

Mr. Hawkins says this is a Republic. True, and it was intended to be a representative Republic. A representative is not a mere deputy, a weather-cock, a blind automaton, to record the will and the passions of the multitude. He is to think for his constituents, to give them the benefit of intelligent patriotism, profound study of political economy,

the Constitution, and statecraft. He is to enrich his mind by observation, travel, study of history, and to train himself for his responsible duties. Ignorant suffrage reverses all this, and puts in public councils the weak, the vacillating, the corrupt. Fidelity to principle, courageous adherence to convictions, broad culture, ripe judgment, sage experience, will be of little worth, and the voice of the rabble becomes the interpreter of laws and contracts and the moulder of policy.

I have before me, but will not read—commending, however, to your attention—what General Grant has said on this subject, what President Hayes has said on this subject, what President Arthur has said on this subject; and I will read to you the words of President Garfield's inaugural address:

All the constitutional power of the nation and of the States and all the volunteer forces of the people should be summoned to meet this danger by the saving influence of universal education.

This aid should be given. It ought to be adequate aid. The peril is imminent; the necessity is present; the need of the people is urgent. The cancer grows worse and worse with the lapse of each day. State systems should not be superseded. The General Government should act in coöperation with State authorities, and not adopt any plan or practice or method which will subordinate them. The aid furnished ought to be given for primary education, for public schools, except in so far as may be required to train teachers, and in my judgment the aid should be coöperative and stimulating. The principle of the Peabody fund, by means of which the fund has multiplied its benefits four-fold, is to help those who help themselves. While the Government has the right and is in duty bound to follow the appropriation, to see that the money is properly applied, it ought to stipulate that so much will be done provided that the State will do more, so that the States in a few years will execute unaided this imperative obligation of providing an education for all their citizens.

Allow me to thank you for your patient attention and for the kindness with which you insisted at this late hour on my making these remarks, necessarily incoherent because unprepared.

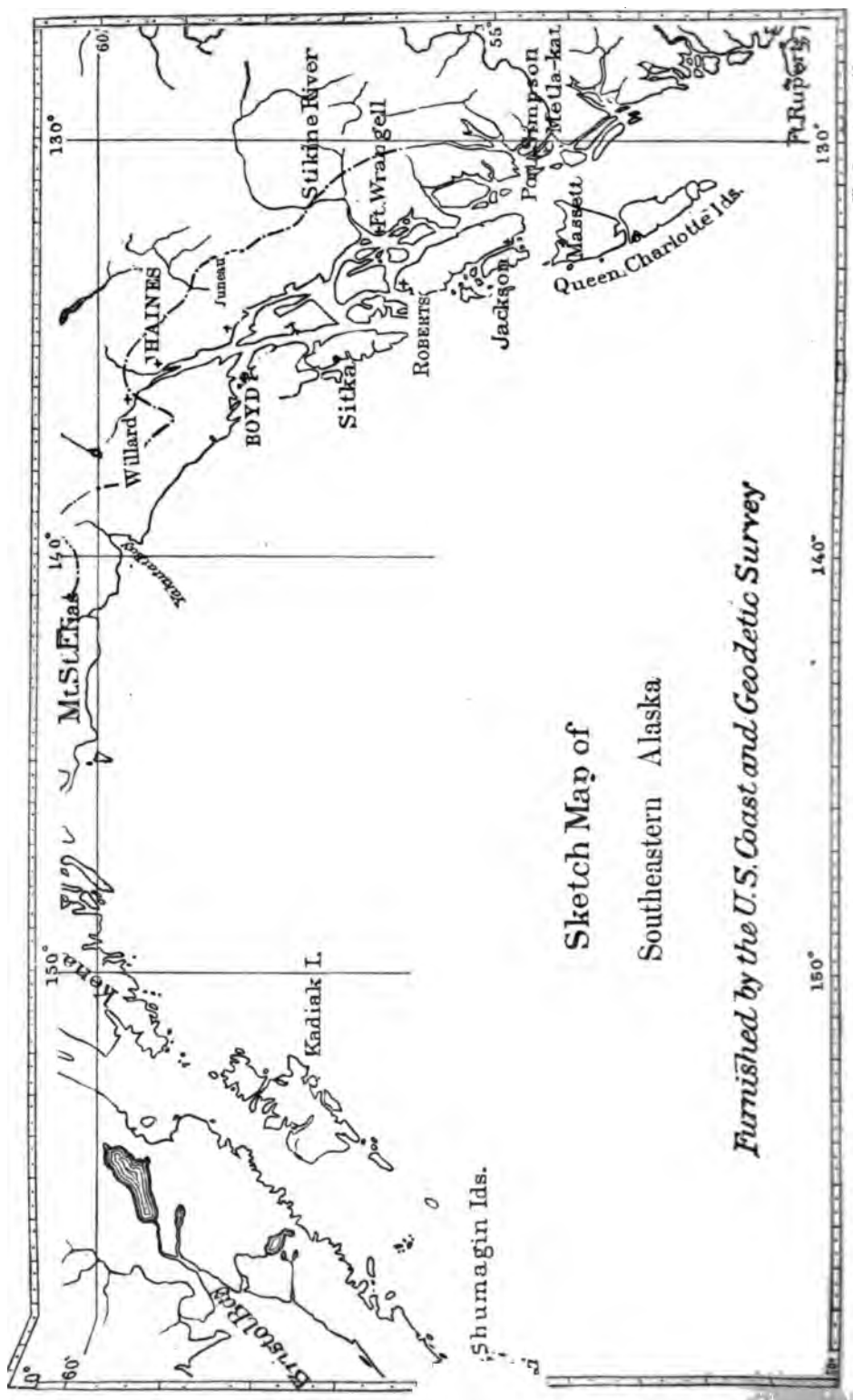
The Department then adjourned, to meet in the same place at 10 o'clock on the following morning.

THIRD SESSION—THURSDAY MORNING.

WASHINGTON, *March 23, 1882.*

The meeting was called to order at 10 A. M., Mr. Stockwell in the chair, and was opened by prayer by Rev. SHELDON JACKSON, D. D.

General EATON read telegrams regretting inability to attend the meetings from Hon. J. D. Pickett, State superintendent of public instruction, Frankfort, Ky.; W. T. Harris, LL. D., Concord, Mass.; and Hon. A. D. White, LL. D., president of Cornell University, Ithaca, N. Y.; to-



gether with letters from Hon. L. S. Cornell, State superintendent of public instruction, Denver, Colo.; Hon. James P. Slade, State superintendent of public instruction, Springfield, Ill.; Hon. H. C. Speer, State superintendent of public instruction, Topeka, Kans.; Hon. D. L. Kiehle, State superintendent of public instruction, St. Paul, Minn.; Hon. J. A. Smith, State superintendent of public education, Jackson, Miss.; Hon. J. W. Patterson, State superintendent of public instruction, Concord, N. H.; Hon. Neil Gilmour, State superintendent of public instruction, Albany, N. Y.; Hon. R. H. Howey, territorial superintendent of public instruction, Helena, Mont.; George B. Lane, superintendent of schools, Omaha, Nebr.; John E. Kimball, superintendent of schools, Newton, Mass.; John Hancock, superintendent of schools, Dayton, Ohio; William Simons, superintendent of schools, Charleston, S. C.; J. W. Bulkley, assistant superintendent of schools, Brooklyn, N. Y.; B. M. Zetter, superintendent of schools, Bibb County Ga.; H. M. Parker, superintendent of schools, Elyria, Ohio; George W. Twitmyer, superintendent of schools, Watsontown, Pa.; J. Fairbanks, school commissioner of Greene County, Mo.; J. M. Fish, superintendent of schools, Little Rock, Ark.; John W. Taylor, superintendent of schools, San Francisco, Cal.; N. A. Calkins, vice president of the department of superintendence, New York; President E. E. White, Purdue University, Lafayette, Ind.; J. P. Wickersham, LL. D., ex-State superintendent of public instruction, Lancaster, Pa.; Prof. W. H. Payne, Ann Arbor, Mich.; T. W. Bicknell, LL. D., Boston, Mass.; and E. J. James, PH. D., Normal, Ill.

Mr. SHELDON read a memorial in regard to the late Bernard Mallou, of Georgia.

Rev. SHELDON JACKSON, D. D., was then introduced, who spoke as follows:

THE NEGLECT OF EDUCATION IN ALASKA.

Mr. PRESIDENT AND FRIENDS OF EDUCATION: So little is known concerning Alaska, the latest acquired and least known section of our country, that I am sure you will welcome a few general remarks concerning the country as a prelude to the subject of the education of its people.

EXTENT AND PHYSICAL CHARACTERISTICS.

To say that Alaska contains 580,107 square miles gives no adequate conception of its great size. That impression is better secured by a series of relative comparisons.

For instance, from extreme north to south is 1,400 miles in an air line, or as far as from Maine to Florida; and from its eastern boundary to the end of the Aleutian Islands, 2,200 miles in an air line, or as far as from Washington to California.

The island of Attu, at the end of the Aleutian chain, is as far west

of San Francisco as Maine is east ; so that between the extreme eastern and western sections San Francisco is the great central city.

Or take another basis of comparison : Alaska is as large as all the New England and Middle States, together with Ohio, Indiana, Illinois, Wisconsin, Michigan, Kentucky, and Tennessee combined, or as large as all the United States east of the Mississippi River and north of Georgia and the Carolinas, or nearly one-sixth of the entire area of the United States. It has a coast line of 25,000 miles, or two and a half times more than the Atlantic and Pacific coast lines of the remaining portion of the United States. The coast of Alaska if extended in a straight line would belt the globe. Commencing at the north shore of Dixon Inlet, in latitude $54^{\circ} 40'$, the coast sweeps in a long regular curve north and west to the entrance of Prince William's Sound, a distance of 550 miles; thence 725 miles south and west to Unimak Pass, at the end of the Aliaska Peninsula. From this pass the Aleutian chain of islands sweep 1,075 miles in a long curve almost to Asia, the dividing line between Russia and the United States being the meridian of 193° west longitude. North of Unimak Pass the coast forms a zigzag line to Point Barrow, on the Arctic Ocean, and thence south of east to the boundary.

Alaska is the great island region of the United States, having off its southeastern coast a large archipelago. The 732 miles of latitude from Puget Sound to the head of Lynn Channel contain a remarkable stretch of inland ocean navigation, noted for its bold shores, deep water, numerous channels, innumerable bays and harbors, abundance of fuel and fresh water, and shelter from the swells of the ocean.

The southern portion of this great archipelago is in Washington Territory, the central portion in British Columbia, and the northern portion in Alaska. The portion in Alaska has been named the Alexander Archipelago. It is about 300 miles north and south and 75 miles wide, and is variously estimated to contain from 1,000 to 10,000 separate islands. The aggregate area of these islands is 14,142 square miles.

Six hundred miles to the westward is the Kadiak group, aggregating 5,676 miles; then the Shumagin group, containing 1,031 square miles; and the Aleutian chain, with an area of 6,391 square miles. To the northward is the Pribyloff group (seal islands), containing, with the other islands in Bering Sea, 3,963 square miles.

The total area of the islands of Alaska is 31,205 square miles, which would make a State as large as the great State of Maine.

It is the region of the highest mountain peaks in the United States. The Coast Range of California and the Rocky Mountain Range of Colorado and Montana unite in Alaska to form the Aliaskan Mountains. This range, instead of continuing northward to the Arctic Ocean, as the old atlases represent, turns to the southwestward, extends through and forms the Aliaska Peninsula, and then gradually sinks into the *Pacific Ocean*, leaving only the highest peaks visible above the water.

These peaks form the Aleutian chain of islands. The islands decrease in size, height, and frequency as the mountain range sinks lower into the ocean. Unimak, the most eastern of the chain, has that magnificent volcano Shishaldin, 9,000 feet high; then Unalashka, 5,691 feet; next Atka, 4,852 feet; then Kyska, 3,700 feet; and Attu, the most western of the group, only 3,084 feet high.

In the Aliaskan Range are the highest peaks in the United States: Mount St. Elias, 19,500 feet high; Mount Cook, 16,000 feet; Mount Crillon, 15,900; Mount Fairweather, 15,500, and numerous others. In addition to the Aliaskan Range, are the Shaktolik and Ulukuk Hills, near Norton Sound; the Yukon and Romanzoff Hills, north of the Yukon River; the Kaiyuh and Nowikakat Mountains, east and south of the river, and a low range of hills bordering the Arctic coast.

Alaska contains the great volcanic system of the United States. Grewingk enumerates 61 volcanoes, mainly on the Aliaska Peninsula and Aleutian Islands, that have been active since the settlement by Europeans.

It is the great glacier region. From Bute Inlet to Unimak Pass nearly every deep gulch has its glacier, some of which are vastly greater and grander than any glacier of the Alps.

On Lynn Channel is a glacier computed to be 1,200 feet thick at the "snout" or lower projection. In one of the gulches of Mount Fairweather is a glacier that extends fifty miles to the sea, where it ends abruptly in a perpendicular ice wall 300 feet high and eight miles broad. Thirty-five miles above Wrangell, on the Stikine River, between two mountains 3,000 feet high, is an immense glacier forty miles long and at the base four to five miles across, and variously estimated from 500 to 1,000 feet high or deep.

Alaska abounds in hot and mineral springs. According to Dall, there are large ones south of Sitka; also on Perenosna Bay, on Amagat Island, and Port Moller. On Unimak Island is a lake of sulphur. Near the volcano Pogrumnoi are hot marshes. Boiling springs are found on the islands Akhun, Atka, Unimak, Adakh, Sitignak, and Kanaga. These latter have for ages been used by the natives for cooking food. In the crater of Goreloi is a vast boiling, steaming mineral spring eighteen miles in circumference. A lake strongly impregnated with nitre is found on Beaver Island. The thermal springs on the island of Unalashka hold sulphur in solution.

The northern portion of the Territory, within the Arctic Circle, is famous for its beautiful auroral displays.

Alaska contains one of the largest rivers of the United States. The river Yukon is 70 miles wide across its five mouths and intervening deltas. At some points along its lower course one bank cannot be seen from the other. For the first thousand miles it is from one to five miles wide, and in some places, including islands, it is 20 miles from

main bank to main bank. Navigable for 1,500 miles, it is computed to be 2,000 miles long.

The other principal rivers of the Territory are the Stickine, 250 miles long; the Chilkat; the Copper; the Fire; the Nushergak, a large shallow stream 150 miles long; the Kooskovime, next to the Yukon in size, and between 500 and 600 miles long; the Tananah, 250 miles (this river is half a mile wide at its mouth, with a very strong current); the Nowikakat, 112 miles; and the Porcupine. The last three are tributaries of the Yukon. The only river of any size flowing into the Arctic Ocean is the Colville, for a long time supposed to be the outlet of the Yukon.

PRODUCTS OF ALASKA.

Alaska is rich in material resources.

The chief value of Alaska to Russia was its wonderful fur supplies; and when the Territory was sold to the United States the most prominent attraction was the seal fur fisheries on the Pribyloff group of islands, in Bering Sea. To protect these valuable interests the Government leased these islands for twenty years to an incorporated company known as the "Alaska Commercial Company." They pay the Government an annual rental of \$55,000 for the islands and a royalty of \$262,500 a year on the 100,000 seal skins allowed by law to be taken.

Thus these two little islands—St. Paul, 13 miles long and 6 wide, and St. George, 10 miles long and 6 wide—furnish nearly all the seal skins used in the markets of the world, and have paid a revenue into the United States Treasury from 1871 to 1882 of over three million dollars; and yet it is thought by some that Alaska was a worthless purchase.

The Alaska Company has a number of trading stations in addition to its seal fisheries.

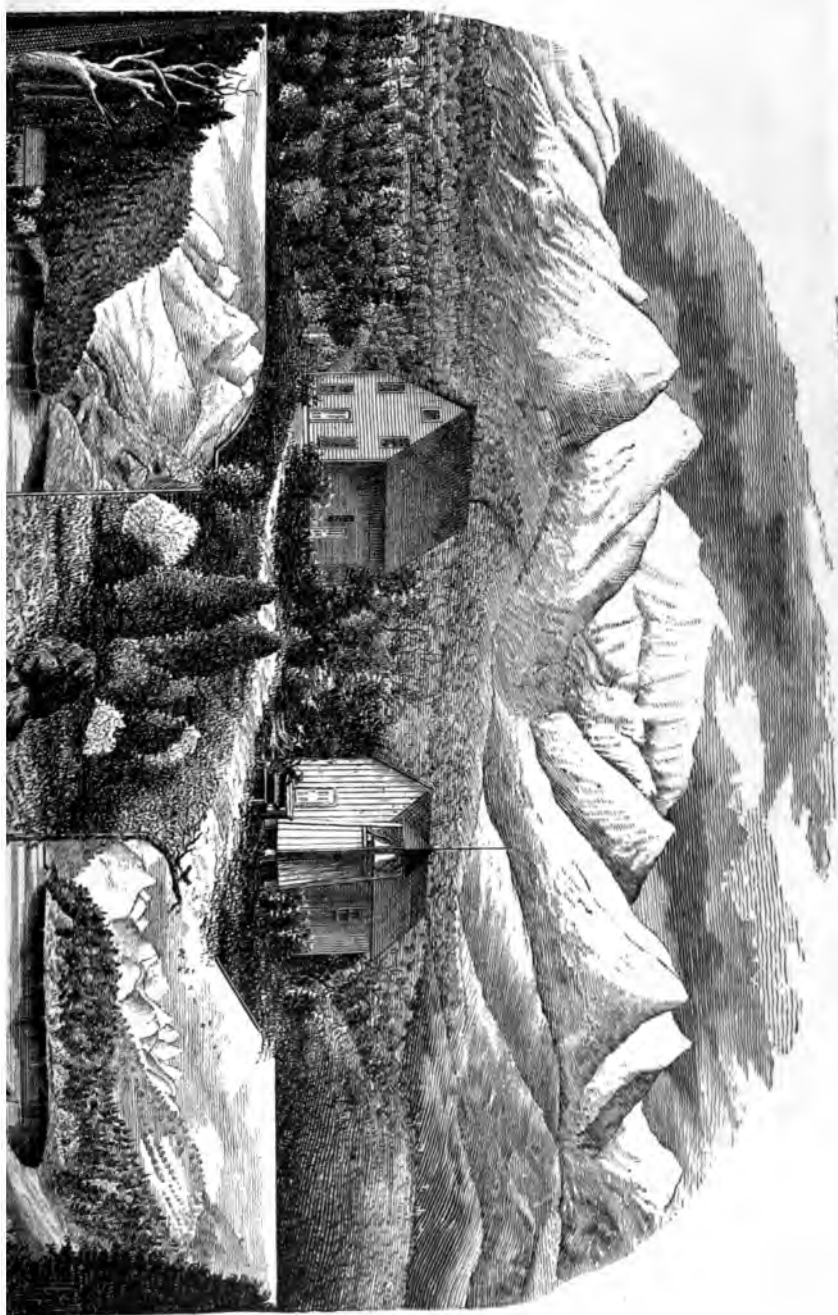
The next most valuable fur is that of the sea otter. In 1880 these skins were quoted at from \$20 to \$200 each.

The principal land fur bearing animals are the several varieties of the fox, the mink, beaver, marten, lynx, otter, bear, and wolverine. There are also the skins of the whistler, reindeer, mountain goat and sheep, ermine, marmot, muskrat, and wolf.

The waters and coast of Alaska abound in fish. Every naval or scien-

Since making this address I have received a copy of a letter written by Robert Campbell of the Hudson's Bay Fur Company, to Hon. M. C. Butler, United States Senator, in which Mr. Campbell represents the Yukon and its tributary Pelly as navigable at certain seasons nearly 4,000 miles. Mr. Campbell says: "In the spring of 1880 . . . I descended the main river and came to the headwaters of a magnificent stream, which I named the 'Pelly River.' . . . In 1881 I received permission to explore the Pelly down nearly 4,000 miles, and thus reached Fort Yukon. . . . settling the question at rest that the Pelly and Yukon were one and the same river. . . . These kinds of salmon ascend the river as far as Pelly Banks, which is about 100 miles from sea coast. . . . When the first of August comes summer steamers will ascend to the mouth of Pelly Banks."

S. J.



tific expedition, from the time that Captain Cook in circumnavigating the globe visited those waters to the present time, has not failed to report the great quantities of salmon, cod, herring, halibut, mullet, ulikon, and other fish of commerce.

Cod are found from the Seal Islands southward, but are most abundant on the banks in the Kadiak and Aleutian Archipelagoes. Three San Francisco firms engaged in the business caught 3,000 tons during 1879 on the banks off the Shumagin Islands.

Alaska can also supply the world with salmon, herring, and halibut of the best quality. Salmon canneries have been established near Sitka, at Klawak, and at Kasa-an Bay.

Alaska is the great reserve lumber region of the United States. It is only a question of a few years when the forests of Maine, Michigan, Wisconsin, Minnesota, and even Puget Sound will be denuded of their best timber. Then the country will appreciate those thousands of square miles of yellow cedar, white spruce, hemlock, and balsam fir that densely cover the southeastern section of Alaska.

The indications are that Alaska is very rich in minerals. Coal is found all along the coast. The most valuable of the known deposits are found in Cook's Inlet. Coal has also been taken and used by the United States revenue marine steamer *Corwin* from the Arctic coast.

Petroleum is found floating on a lake near the Bay of Katmai. It is quite odorless, and in its crude state has been used by the Russians for lubricating machinery. Large deposits have also been found on Copper River.

Specimens of pure copper have been found in many places. It is so abundant on Copper River as to give its name to that stream. At Kasa-an Bay a valuable mine of bronze copper is being worked by an English company. Lead in small quantities is found on Whale Bay, south of Sitka, and also in Kadiak Island.

Iron is common to many sections of the territory. Graphite is found at several places. A fine quality of marble exists in inexhaustible quantities. A fine quality of bismuth is found on Vostovia Mountain. Kaoline, fire clay, and gypsum are also found. Sulphur exists in large quantities. Amethysts, zeolites, garnets, agates, carnelians, and fossil ivory are found. Indeed, the people of the United States have no conception of the mineral wealth of Alaska.

Gold is found in a number of places and supposed to exist in many others. Up the Stikine River, through Alaska, over on the headwaters of Deese River, are the Cassiar mines of British Columbia, where from 2,000 to 3,000 miners have spent several summers in placer mining. The annual product of these mines has been from \$800,000 to \$1,000,000.

During 1881 gold mines, both placer and quartz, were opened on Gastineaux Channel, opposite Douglass Island, Alaska, where the American town of Juneau was built. The yield for the first summer was over \$30,000.

CLIMATE.

In a country as extended as Alaska, with its large rolling plains, wide valleys, and high mountains, there is necessarily a wide diversity of climate. In a general way it may be said that inland Alaska has an arctic winter and a tropical summer. At Fort Yukon the thermometer often rises above 100° in summer and indicates from 50° to 70° below zero in winter. At Nulato, on the Yukon River, the fall of snow during the winter averages 8 feet and frequently reaches 12 feet. Along the immense southern coast and islands the climate is moist and warm.

The greatest cold recorded on the island of Unalashka, by a Greek priest, during a period of five years, was zero of Fahrenheit; extremest heat for the same time was 77° . The average for five years at 7 A. M. was 37° ; 1 P. M., 40° ; and 9 P. M., 36° . The average of weather for seven years was 53 all clear days, 1,263 half clear, and 1,235 all cloudy. It is very much the climate of Northwestern Scotland.

At St. Paul Harbor, Kadiak Island, the mean annual summer temperature is 54° and winter 29° ; the coldest month, February, with the thermometer at 27° ; and the warmest, July and August, with a mean temperature of 57° , the extremes being from 6° to 75° . The climate is that of Southern Sweden and Norway. The annual rainfall is about 73 inches.

At Sitka, where, with the exception of a few short gaps, a record of the thermometer has been kept for 45 years, it has been found that the mean spring temperature was 41.2° ; summer, 54.6° ; autumn, 44.9° ; winter, 32.5° ; and for the entire year, 43.3° . The greatest degree of heat recorded in these 45 years was 87.8° , and of cold 4° below zero. The thermometer has recorded below zero during only four of the 45 years, and above 80° during only seven of those years. The mean annual temperature for 45 years has ranged from 41.3° to 46.8° , a difference of but 5.5° . The annual rainfall was 81 inches.

During a period of 43 years there has been an average of 200 rainy or snowy days a year, the most favorable year being 1833, with 82 rainy and 32 snowy days, and the most unfavorable 1856, with 258 rainy and 27 snowy days.

From these facts, taken from the Alaska Coast Pilot, Appendix 1, Meteorology, A. D. 1880, the surprising fact is brought to light that the winter climate of Southeastern Alaska for 45 years past has been the average winter climate of Kentucky and West Virginia and the average summer climate of Minnesota.

This mild climate of Southern Alaska is due to the warm Japan current of the Pacific, the Kuro-Siwo, which first strikes the American continent at the Queen Charlotte Islands, in latitude 50° north. Here the stream divides, one portion going northward and westward along the coast of Alaska and the other southward along the coast of British Columbia, Washington, Oregon, and California, giving them their mild *winter climate*.

The former stream, flowing northward, has been named "the Alaska current," and gives the great southern coast of Alaska a winter climate as mild as that of one-third of the United States.

The physical configuration of Alaska naturally divides it into three districts: the Yukon, extending from the Alaskan range of mountains to the Arctic Ocean; the Aleutian, embracing the Aliaska Peninsula and islands west of the one hundred and fifty-fifth degree of longitude; and the Sitkan, including Southeastern Alaska.

Concerning the Yukon district but little is known, except of the coast and along the Yukon River.

The Coast Pilot, a publication of the United States Coast Survey, represents the country between Norton Sound and the Arctic Ocean as "a vast moorland, whose level is only interrupted by promontories and isolated mountains, with numerous lakes, bogs, and peat-beds. Wherever drainage exists, the ground is covered with a luxuriant herbage and produces the rarest as well as most beautiful plants. The aspect of some of these spots is very gay. Many flowers are large, their colors bright, and though white and yellow predominate, other tints are not uncommon. Summer sets in most rapidly in May, and the landscape is quickly overspread with a lively green." The extreme heat and constant sunshine cause it to produce rank vegetation. The commercial value of this section is mainly in its furs.

The Aleutian district is largely mountainous and of volcanic formation. Between the mountains and the sea are, however, many natural prairies, with a rich soil of vegetable mould and clay, covered with perennial wild grasses.

This district, except at the eastern end, is without timber larger than a shrub. The principal resource at present is in the wonderful fisheries off its coast.

The Sitkan district is mountainous in the extreme, and the larger portion covered with dense forests. The great wealth of this district is in its lumber, fish, and minerals. Many garden vegetables are raised with success.

With regard to Alaska, Mr. William H. Dall, of the Smithsonian Institution, writes, after a trip to Europe: "I come back convinced, from personal inspection, that Alaska is a far better country than much of Great Britain and Norway, or even part of Prussia."

MEANS OF COMMUNICATION.

The routes of travel to Alaska are not very numerous. A steamer carrying the United States mail between Port Townsend, Washington Territory, and Fort Wrangell and Sitka, Alaska, makes a monthly trip.

Two small steamers run at irregular intervals during the summer from Victoria, B. C., to Fort Wrangell, calling en route at the several trading posts on the coast of British Columbia.

The country west of Sitka, including the Aleutian Islands and the

great interior and main section of the territory, is reached from San Francisco; so that a citizen of Oregon, in order to reach Kadiak, Unalashka, the seal islands, St. Michael, or the numerous villages on the Yukon River, is under the necessity of going by the way of San Francisco. From this latter place there is frequent communication with Western Alaska, and once a year with the central and northern sections.

POPULATION.

The census of 1880 gives the following enumeration: Yukon division, 7,000; interior division, 2,226; Kuskokwim, 3,654; Bristol Bay, 4,340; Kadiak, 2,606; Kenai, 984; Belkovsky, 669; Unalashka, 1,392; islands in Bering Sea, 1,290; Prince William Sound, 500, and Southeastern Alaska, 6,725; making 31,386, of whom about 18,000 are supposed to be Eskimo or Innuít. In addition to the above are about 1,500 whites in Southeastern Alaska, mainly traders and miners.

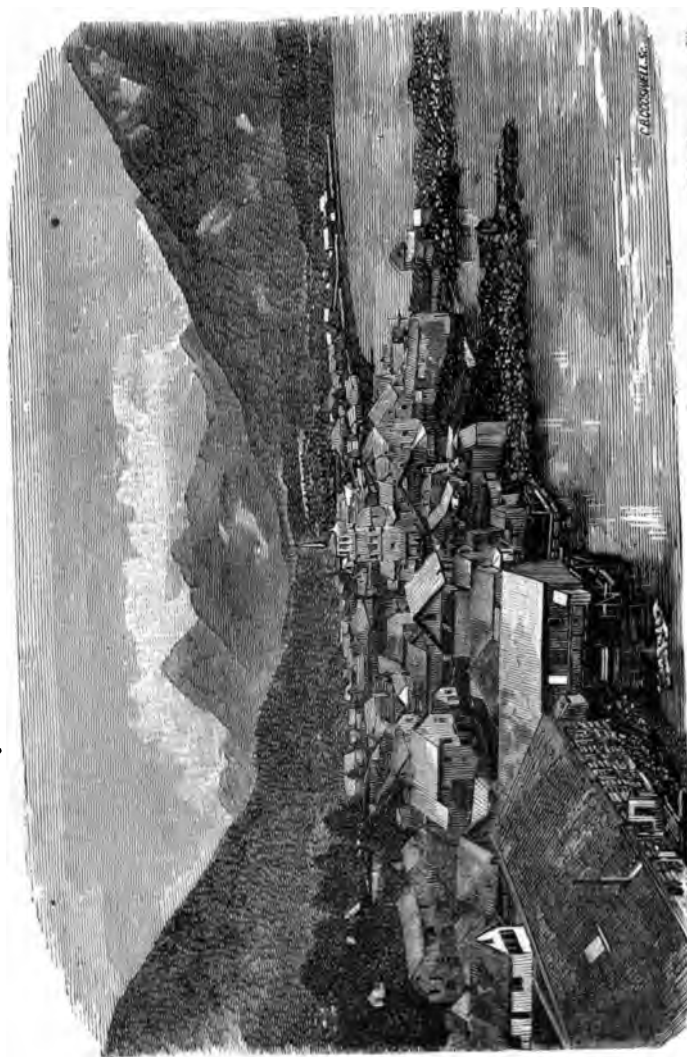
The Aleutian population and a portion of the Innuits were so far brought under the influence of the Russians that they became civilized, and are living after European methods. Among these the Greek Church of Russia claims from 8,000 to 9,000 members.

The remaining Innuít and Indian population are largely in their original condition.

EDUCATION UNDER THE RUSSIAN GOVERNMENT.

Information concerning Russian schools in Alaska is very meagre, the available source to the English reader being the admirable work of William H. Dall, *Alaska and its Resources*, pages 351 and 352. The first European settlers were Russians, attracted by the valuable furs and skins. Many of these married Indian women and raised families of mixed blood or creoles. As these children increased and grew up there began to be, on the part of some of the fathers, a felt need for schools. Accordingly, Gregory Shélikoff, governor of the colony and founder of the Russian-American Fur Company, established a school at Kadiak, about the year 1792, which was taught by the trader. In 1803 it reported 30 pupils, who were studying arithmetic, navigation, and four mechanical trades. In 1805 the imperial chamberlain and commissioner, Count Nikolai Resánoff, organized a school at Kadiak, under the name of the "House of Benevolence of the Empress Maria," in which were taught the Russian language, arithmetic, and the Greek religion. This school was reorganized in 1820.

About the same time a school was opened at Sitka, with a very precarious existence until 1820, when it came under the charge of a naval officer, who kept a good school for thirteen years. In 1833 this school came under the direction of Etolin, who still further increased its efficiency. Etolin was a creole who, by the force of ability and merit, raised himself to the highest position in the country, that of chief director of the Fur Company and governor of the colony. He was a Lu-



Sika, Alaska.

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theran, the patron of schools and churches. While governor he erected a Protestant church at Sitka, and presented it with a small pipe-organ, which is still in use.

In 1825, Veniaminoff, who afterwards became the metropolite of Moscow, established a school for natives and creoles at Unalashka. In 1860 it reported 50 boys and 43 girls. This school is still in existence, but with a small and irregular attendance. It is supported at the expense of the Alaska Commercial Company. For the use of the schools, Veniaminoff prepared an alphabet and grammar in the Aleutian language. In 1837 a school was established for girls, children of the employés of the Fur Company, and orphans. In 1842 it had 42 pupils, and 22 in 1862 when it disbanded.

In 1840 there were in the colonies 8 schools, 4 for boys and 4 for girls. Besides the colonial school at Sitka was one for orphan boys and sons of workmen and subaltern employés of the Fur Company, in which were taught reading, writing, arithmetic, grammar, mechanical trades, and religion. The most proficient of the pupils at the age of 17 were advanced to the colonial school and prepared for the navy or priesthood. The number of boarders was limited to 50. The school was in charge of Lieutenant Commander Prince Maxutoff, assistant governor of the colony. In 1847 the attendance was 52; in 1849, 39; and in 1861, 27.

In 1839 a girls' school of a similar character was established and number of boarders limited to 40. The course of study comprised Russian language, reading, writing, arithmetic, household work, sewing, and religion. In 1848 the school numbered 32; in 1849, 39; and in 1861, 26.

In 1841 a theological school was established at Sitka, which in 1845 was advanced to the grade of a seminary. In 1848 it reported 30 boarders, 12 day pupils and 12 creoles being educated in Russia. Of those in Russia, 2 were in training for pilots, 1 as merchant, 1 gunsmith, 1 fur dealer, 1 tailor, and 1 cobbler. In 1849 the attendance was reported 28, with 11 others in Russia.

In 1859 and 1860 the common schools at Sitka were remodelled in order to secure greater efficiency. The course of study consisted of Russian, Slavonian, and English languages, arithmetic, history, geography, book-keeping, geometry, trigonometry, navigation, astronomy, and religion. A knowledge of Russian, reading, writing, and the four rules of arithmetic was required for admission. A pupil failing to pass examination two years in succession was dropped. The course extended over five years. Extra compensation was allowed teachers who secured the best results. The faculty consisted of a principal, who was a graduate of the School of Commercial Navigation; a free pilot, who taught navigation; an employé of the company, who taught book-keeping and commercial branches; one priest and two licentiates, graduates of the University of St. Petersburg.

The corresponding school for girls was in charge of a lady graduate of one of the highest female schools in Russia, with two male teachers.

This made five schools at Sitka: two for the children of the lower class, two for the higher class, and one seminary.

On Spruce Island a Russian monk kept a school for thirty consecutive years for giving instruction in the rudimentary arts and agricultural industries.

In 1860 a school was reported on Amlia Island, with 30 in attendance. All these schools have been discontinued. A school-house was erected on the Lower Yukon, but never used. The result of these schools, especially among the Aleuts, is thus summed up by Hon. W. S. Dodge, of Sitka:

Nearly all of them read and write. Around their homes, in their churches and schools, are seen many if not all the concomitants of ordinary American homes. Many among them are highly educated, even in the classics. The administration of the Fur Company often reposed great confidence in them. One of their best physicians was an Aleutian; one of their best navigators was an Aleutian; their best traders and accountants were Aleutians.

EDUCATION SINCE THE PURCHASE.

In 1867 Alaska, with its inhabitants, became a part of the United States. The schools sustained by the Fur Company, representing the Russian government, were disbanded. It was reasonable, however, to suppose that 30,000 people would be much better off and have better schools under American than under Russian rule. It was but reasonable to expect that the United States, that bases its continued existence upon the intelligence of its citizens and glories in its common school system, would replace the disbanded Russian schools with those of a higher grade and improved methods; that a people who, through their State systems, practically furnish a free education to all, and through their General Government appropriate thousands of dollars annually for Indian education and civilization, would not neglect to extend school privileges to the natives of their latest acquired territory; for whatever may have been the views held as to the expediency of the purchase, all will admit that, having acquired it, the Government is bound to care for it.

But these reasonable and just expectations have not been realized. The Government, with two exceptions that will hereafter be mentioned, has done nothing. The schools once taught by the Russian priests have one after another died, until only two remain—those of Unalashka and Belkovsky—and, according to the census of 1880, the average attendance at these is less than ten of both sexes. They are also irregularly kept. If only one or two appear at school time, the session is adjourned until more arrive, or even to the next day. No English is taught and only the rudiments of Russian. The children of those who learned to read and write in the Russian schools, deprived of schools by the neglect of the Government, are left to grow up in ignorance, until, among the 7,000 or 8,000 members of the Græco-Russian Church, the census reports less than 400 able to read or write in the Aleutian, Kadiak, or Russian languages. Outside of the Aleuts and a few at Sitka, among the





Fort Wrangell, Alaska.

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Eskimos and Indian population none can read or write except those that during the past four years have attended the schools established by the Presbyterian Church in Southeastern Alaska.

For ten years after the purchase the entire population, with the exception of the two small Russian schools previously mentioned and two small ones on the Seal Islands, were left without any educational opportunities whatever.

In 1877 my attention was earnestly called to this state of things, and since that time I have made three visits to Southeastern Alaska, and secured for the Board of Home Missions of the Presbyterian Church the establishment of five schools in Southeastern Alaska. The movement, however, commenced from without, and was the result of mission schools among the neighboring tribes in British Columbia.

Fort Wrangell schools.—In the spring of 1876 nine Tsimpshean Indians came up the coast from Fort Simpson, British Columbia, and took a contract for cutting wood for the military post then at Fort Wrangell, Alaska. On the Sabbath, as was their custom, they gathered for worship. They found a warm friend in Capt. S. P. Jocelyn, of the Twenty-first United States Infantry, who was then in command at that station. He assisted them in procuring a room for Sabbath worship and protected them from interruptions. He also supplied them with some small hymn-books sent to the fort by the American Tract Society. At the close of their contract, in the fall, as they were about returning to Fort Simpson, Clah, who had been the leader among these Indians, was persuaded to remain and open a school. Such was the anxiety of the people to learn that his school was attended by 60 to 70 adults besides children. "These people," said a sailor, "are crazy to learn. Going up the beach last night, I overheard an Indian girl spelling words of one and two syllables. Upon looking into the house, I found that, unable to procure a school book, she was learning from a scrap of newspaper that she had picked up."

Touched by the eagerness of this people to learn, a soldier at the post wrote to Major-General Howard, then in command of that military district, asking if some society could not be interested to send them a competent teacher. The letter was placed in my hands in May, 1877, and immediately published in the Chicago Tribune. Soon after it was published in the leading Presbyterian newspapers of the country, with a call for a teacher.

To gain a better understanding of this movement of the natives for a school, I made them a visit in August, 1877. In passing through Portland I found a teacher who had had large experience in mission work and Indian schools—Mrs. A. R. McFarland—whom I took with me. Going ashore upon our arrival, August 10, I heard the ringing of the bell for the afternoon school, and went directly to the school-house.

About twenty pupils were in attendance, mostly young Indian women. Two or three boys were present; also, a mother and her three little chil-

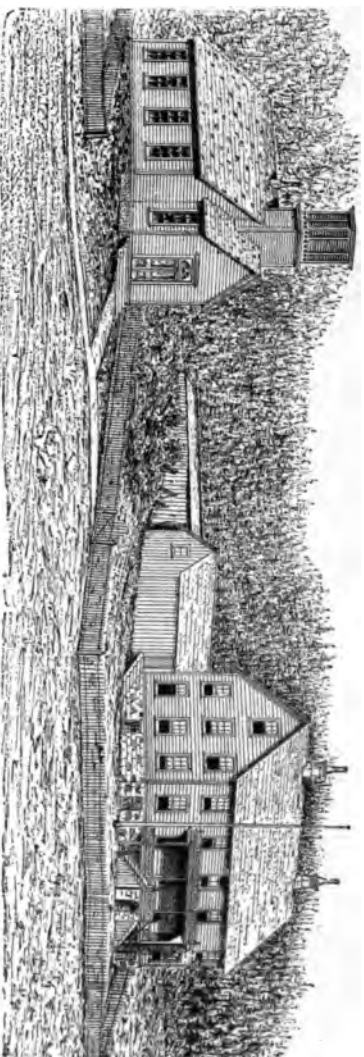
dren. As the women took their seats on the rough plank benches each one bowed her head in silent prayer, seeking divine help in her studies. Soon a thoughtful Indian man of about twenty-five years of age came in and took his seat behind the rude desk. The familiar hymn "What a friend we have in Jesus" was sung in English; a prayer followed in the Chinook jargon, which is the common language of the various tribes on this coast, closing with the repetition, in concert, of the Lord's Prayer in English. After lessons were studied and recited, the school arose, sung the long-metre doxology, and recited in concert the benediction. Then the teacher said, "Good afternoon, my pupils," to which came the kindly response, "Good afternoon, teacher."

The school was in full operation, but under great difficulties. They greatly needed maps and charts; they were also in great need of a school-house. At the time of my visit they were renting a dance-hall for a school-room. Upon the return of the miners for the winter, the hall had to be given up, and the school was held in a dilapidated log house. I found that their stock of books inventoried as follows: four small Bibles, four hymn books, three primers, thirteen first readers, and one wall chart.

Mrs. McFarland was at once placed in charge of the school, with Clah as an assistant and Mrs. Sarah Dickinson, a Christian Tongass Indian, as interpreter. Early in the history of her school, Mrs. McFarland found a difficulty in holding her girl pupils. According to the customs of their people, they were frequently hired or sold by their own mothers to white traders, miners, and others for base purposes. And the brighter the girl the greater her danger; for, as she improved in the school, she began to dress more neatly, comb her hair, and keep her person more cleanly; the dull, stolid cast of countenance gave way to the light of intelligence, and she began to be more attractive, and consequently in greater demand. To save these girls necessitated the establishment of a "home" into which they could be gathered, and thus taken out from under the control of their mothers. Consequently a home was added to the school in October, 1878, and kept in what was formerly the hospital building of the military post.

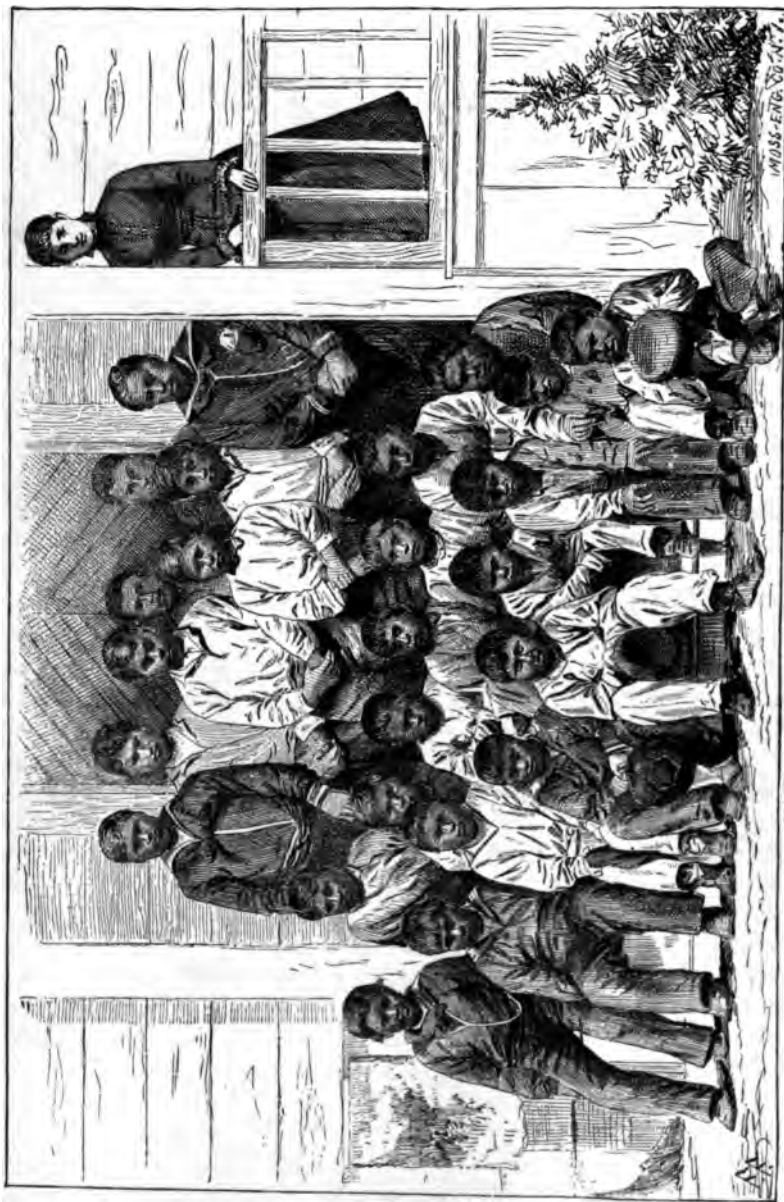
In July, 1879, I made my second trip to Alaska, in company with Rev. Dr. Henry Kendall, senior secretary of the Presbyterian Board of Home Missions. We took out with us Miss Maggie J. Dunbar, to take charge of the school, while Mrs. McFarland gave her whole time to the "home," which has since been named the McFarland Home, and has now 30 inmates, representing thirteen different tribes.

The average attendance of day pupils during the season of 1880-'81 was 60. This is now so largely increased that two additional teachers have been appointed. During the season of 1879 I provided for the erection of a large two-story building, with basement and attic, 40 by 60 feet, for the use of the home and school, which has since been completed at an expense of \$7,600. In August, 1878, Rev. S. Hall Young



Presbyterian Church and McFarland Home, Fort Wrangell, Alaska. [To face page 72.]





Sheldon Jackson Indian School, Sitka, Alaska.

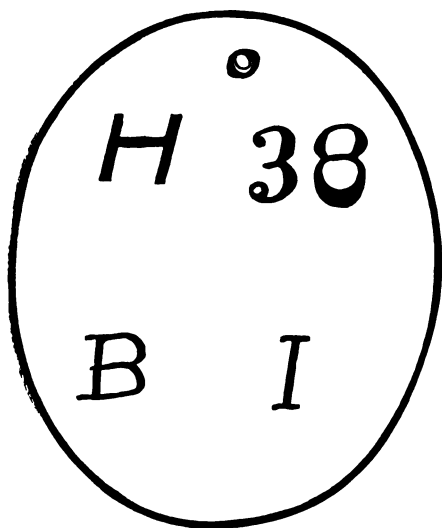
[To face page 78.]

was sent out to take charge of the mission church at Fort Wrangell. In June, 1879, Rev. W. H. R. Corlies and family reached Wrangell as volunteer teachers. Mrs. Corlies at once opened a school on the beach for the children of the visiting Indians, of whom there are sometimes as many as a thousand. These come from all parts of the coast for the purposes of trade. They see what is being done by the teachers and carry away the leaven with them. This school on the beach has exerted a very wide influence and created a demand for schools among several of the tribes. During the long winter evenings a night school has been carried on for the adults by Messrs. Young and Corlies.

Sitka schools.—In the winter of 1877-'78 I secured the appointment of Rev. John G. Brady for Sitka, and in April, 1878, a school was opened by Mr. Brady and Miss Fannie E. Kellogg. In December, through a combination of circumstances, it was discontinued. In the spring of 1880 Miss Olinda Austin was sent out from New York City, and reopened the school April 5 in one of the rooms of the guard-house, with 103 children present. This number increased to 130. Then some of the parents applied for admission, but could not be received, as the room would not hold any more. Miss Austin received the support and substantial assistance of Captain Beardslee, then in command of the United States ship Jamestown, who proved himself a warm friend of the enterprise. In July the school was moved to the old hospital building. In November some of the boys applied to the teacher for permission to live at the school-house. At home there was so much drinking, talking, and carousing that they could not study. The teacher said she had no accommodations, bedding, or food for them. But they were so much in earnest that they said they would provide for themselves. Upon receiving permission, seven Indian boys, thirteen and fourteen years of age, bringing a blanket each and a piece of tin for a looking-glass, voluntarily left their homes and took up their abode in a vacant room of one of the Government buildings. Thus commenced the boarding department of the Sitka school. Soon other boys joined them. One was a boy who had been taken out and shot as a witch, but was rescued by the officers of the Jamestown and placed in the school. Capt. Henry Glass, who succeeded Captain Beardslee in command of the Jamestown, from the first, with his officers, took a deep interest in the school. As he has had opportunity he secured boys from distant tribes and placed them in the school, until there are 27 boys in the boarding department.

In February, 1881, Captain Glass established a rule compelling the attendance of the Indian children upon the day school, which was a move in the right direction and has worked admirably. He first caused the Indian village to be cleaned up, ditches dug around each house for drainage, and the houses whitewashed. These sanitary regulations have already greatly lessened the sickness and death rate among them. He then caused the houses to be numbered, and an accurate census taken of

the inmates, adults, and children. He then caused a label to be made of tin for each child, which was tied around the neck of the child, with his



or her number and the number of the house on it, so that if a child was found on the street during school hours the Indian policeman was under orders to take the numbers on the labels and report them, or the teacher each day would report that such numbers from such houses were absent that day. The following morning the head Indian of the house to which the absentee belonged was summoned to appear and answer for the absence of the child. If the child was wilfully absent, the head man was fined or imprisoned. A few cases of fine were sufficient. As soon as they found the captain in ear-

nest, the children were all in school. This ran the average attendance up to 230 and 250, one day reaching, with adults, 271. In April Mr. Alonzo E. Austin was associated with his daughter in the school and Mrs. Austin was appointed matron. A fuller account of these schools at Port Wrangell and at Sitka, together with the Indian schools in British Columbia, is to be found in a book published by Dodd, Mead & Co., 755 Broadway, New York City: Alaska, and Missions on the North Pacific Coast.

Russian school at Sitka.—In the fall of 1879, through a private effort made by Captain Beardslee, the officers of the United States ship Jamestown, and the citizens of Sitka, a school was opened by Alonzo E. Austin for the white and Russian children, with an average attendance of 45 to 55. When, in the spring of 1880, Mr. Austin went into the Indian school, he was succeeded by his second daughter, who left in August to teach an Indian school among the Hoonyahs. Miss Austin was succeeded by Mrs. Zechard, who is now in charge.

Takoo.—During the summer of 1880, Rev. and Mrs. W. H. R. Corlies carried on a temporary school among the Takoos.

Haines.—In the summer of 1880, Mrs. Sarah Dickinson, a Christian Tongass Indian, was sent to open a school at the store of the Northwest Trading Company, among the Chilkats, at the head of Lynn Channel. During the past summer I erected at that point a residence for the teachers and provided a school building, leaving Rev. E. S. Willard, of Illinois, in charge, with a flourishing school of 65 pupils.

Boyd.—During the past summer I erected a school-house and residence for the teachers in the principal village of the Hoonyahs, on

Cross Sound, and left Mr. and Mrs. Walter B. Styles, of New York City, in charge of the school. The attendance is from 70 to 80.

Hydah Tribe.—At Jackson, near the southern end of Prince of Wales Island, the chief presented me with a good native house, which I altered over and repaired so that it will answer very well for a school this winter. Next season I hope to build there also. The teacher is Mr. James E. Chapman, of Ohio.

In all these schools the English language is taught. The above five schools in the Alexandria Archipelago, with the small Russian schools at Unalashka and Belkovsky, and the two schools of the Alaska Commercial Company, on the Seal Islands, comprise all the schools in Alaska, leaving a population of fully 20,000 without any educational advantages whatever.

As Alaska is the only section of the United States where governmental or local aid has not been furnished for schools, it is but justice that the friends of education should press Congress for aid.

Then, as American citizens and educators, feeling ashamed that any section of our land should be worse off educationally than when under the control of Russia, having failed to continue the schools that for many years were sustained by the Russian government, we should join in indorsing the request of the National Bureau of Education, which was approved by the honorable Secretary of the Interior and on the 15th of February transmitted to Congress in a special message by the President, asking for an appropriation of \$50,000 for education in Alaska.

At the conclusion of these remarks, Mr. SHELDON offered the following preamble and resolution; which were adopted unanimously:

Whereas the native population of Alaska have alone of all sections of our common country been overlooked in educational provisions; and

Whereas the President has sent to Congress a special message asking for an appropriation of \$50,000 for education in Alaska, to be disbursed through the National Bureau of Education: Therefore,

Resolved, That this Association earnestly requests from the Committees of Education and Labor of the Senate and House of Representatives a favorable consideration of the above request.

The text of the second paper presented, by W. W. Godding, M. D., Superintendent of the Government Hospital for the Insane, is as follows:

A WORD WITH TEACHERS FROM MY STANDPOINT.

GENTLEMEN: You take the mind young and fresh in life's morning and send it, aspiring to become godlike, on its upward flight; I receive it torn and bleeding as it comes fluttering down; is there anything in common between our studies that I should ask you to pause for fifteen minutes in the important labors of your session to listen to me? I doubt it, unless you consider it in the light of a fifteen-minutes recess. *How shall I teach the teachers?* The germ of insanity lies back of the

education, and I question if the inexorable law in nature which we know as that of "the survival of the fittest" will not, in spite of any or all education, send a considerable per cent. of weak brains to moulder and become moss-grown within asylum walls. This seems but a reasonable deduction from the facts within my own observation; but then I reflect that the sources of life and reason are not in our hands; I know how a little more or a little less of that subtle something we call common sense makes the difference between the wise man and the fool; remembering, too, how a sage physician, by a sudden flash of sunlight thrown from a mirror upon an idiot boy in a darkened room, awakened a gleam of intelligence, disclosing a mind where it had hitherto been supposed to have no existence, I realize what teaching in the hands of a master may accomplish; then, standing among the melancholy ruins where my studies bring me, I think that perhaps a different education would have spared a father's anguish for his only son, could have saved this demented girl

To have been some man's delight,

might have still kept eloquent that drivelling tongue; and so I am here.

From my standpoint the first mistake that we make in the education of the young is that we do not pay sufficient attention to the temperament of the child; we are not all cast in the same mould, even if we do bear the same image. This lethargic youth, whose mental integuments are like the wrappings of a rhinoceros, needs all our goading—a brain fever is hardly possible to such an organization; but this girl, with clear skin, spare neck, intellectual forehead, and speaking eyes, whose lessons are always perfect, whose answer anticipates almost your very thought, whose nervous susceptibility quivers through every fibre if she fancies your reproof of the above mentioned blockhead is meant for her—it is not study out of school that she requires, but the gymnasium, the rest of long vacations in the summer fields, with nights of repose unbroken by any dreams of school prizes. I know oftentimes your bright scholar is such an oasis in a desert of abounding dulness that there is a strong temptation to the teacher to give him free rein; hence it often occurs that your valedictorian is never heard of afterwards. It is staying power that you want more than brilliancy of mind.

Are we not asking too much of our children? Lay the foundations broad—the broader the better—in physical health, and let the mental growth be natural without forcing. I like the open-air summer schools; even in our climate we should be gainers with more of the outdoor life of the old Greeks; I wish we had again the forum and the grove of Academia; in such schools our children would gain in vigor to more than counterbalance their loss in the exact methods of book teaching. Yes: the advance in all kinds of knowledge is something wonderful. They tell me it is necessary that my son should begin at

the age of seven to fit for college, if he is to enter Harvard; it is true he begins to shed his milk teeth at that time, but he will only see of Harvard the outside of the buildings, for, college or no college, I do not intend to make him the last of my race. You say, and probably truly, that the student now must know more when he enters college than I did when I graduated, and, I may add, than I ever have since. And what do you accomplish by crowding all this accumulation of wisdom into one little brain? Why, you have increased the cerebration, you have intensified the nervous action, but you have not enlarged the cranium, or, if you have, the chances are you have done so at the expense of the physical vigor.

But you say by our education we have moved forward the limit of the individual life. For thirty centuries, and I know not for how much longer, the Psalmist's three score years and ten have been the inexorable horizon of earthly existence; we cannot change this, but we do practically extend it by enlarging its vista; our life keeps quick step to the wonderful march of science; we ride with the storm, we write with the lightning, we paint with the sunbeam; everything is by the instantaneous process. As Poe said of the singer Malibran, "She crowded ages into hours; she left the world at twenty-nine, having existed her thousands of years." I grant you, if this were the final age, nothing could be more desirable; if this was the closing scene and no coming time, no children to inherit our exhausted vitality and to call us anything but blessed.

In a bookstore, the other day, the first volume that met my eye was entitled *A New Form of Nervous Disease*. New form? Why their name is legion. A treatise on the neurotic disorders now makes one of the largest works in a physician's library. It is an age spendthrift alike in brain and in material. Of the heat and power that have been slowly accumulated in the coal measures through the eons of geologic time, which would last with careful consumption for myriad generations, we take 2 per cent. for our purpose, sending the remaining 98 per cent. to be dissipated in warming interstellar space. To the charge of wasteful expenditure, modern science answers that future generations can make available the energy of the tides and keep warm by electricity stored up in reservoirs whose feasibility is even now being demonstrated. They will need it, for our ruthless destruction of the forests will not even leave them the luxury of a wood fire. Yes, power is convertible into everything short of mind, but that I doubt. The "Promethean heat" once exhausted, the vital energy of a race destroyed, science, that tells us so much, knows of no way to restore it, and history points us only to the Huns and the Goths.

The danger to our civilization to-day lies in the direction of nervous exhaustion. I know that those who believe that we are just on the dawn of an intellectual and a material millenium will smile at this, and they will tell you that never in the history of the world was there a higher

manhood, or a time when the individual man was so grandly cared for and had such possibilities as at present. The world, in its successive epochs of civilization, has always shown a culmination of prosperity and an intellectual blossoming just before its decline. Witness the Augustine era and that age of gold of Spanish conquest and renown. This is the age of brain; the marvellous discoveries of science are utilized to intensify our struggle for wealth, for vantage ground, to make all the universe tributary to the little span of our human life. The luxuries of the last generation have become the necessities of this; wealth is only relative, and power never brings content; there is a constant increment of strain, and woe to the brain that goes halt or maimed into that battle.

Do you say this is the mere vagary of an alarmist, the Cassandra-like cry that finds no believers? Ah, but while it was in the infinite decrees that Cassandra should not be believed in that fated city, none the less did the divine afflatus compel her to prophesy, none the less were her forebodings true. Do not understand me to mean that our school education is responsible for all this; no, not even for any considerable part of what we are pleased to call the spirit of the times; but what I do say is that it is the duty of the teacher, instead of drifting with the tide and accepting the tendencies of the age as something inevitable and not to be overcome, to stand up in the dignity of his great office, and of his manhood, and call a halt to this on-rushing madness, and to so instruct the coming generation, the youths who shall take our places, those who "shall be kings hereafter," as to lead them into a "more excellent way." In truth, we are sponsors for the future as well as possessors of the present, and are morally bound to transmit this earth, which is ours to-day, and the vigor of this human life, which for a span we hold, unimpaired to those who in the endless procession shall come after us, as the miller may use the water in the river to turn his wheel and pass it on to another, but has no right to divert the channel or poison the stream.

This brings me to what I have to say on heredity, a subject which concerns you as educators in the broadest sense, not of children alone but of communities. Just now, for the purposes of a certain trial, the newspapers, those blind Samsons in the cause of popular education, have given out that there is no such thing as hereditary disease, that the most eminent experts have so stated. Well, what my brethren, who stand away up at the head of the class did say, trying to be very exact in the use of language, feeling that they were under oath, was, that the tendency to insanity was hereditary, not the disease itself. "The rose by any other name,"—but in common parlance we say, and properly say, hereditary disease; and where a great truth is involved we cannot afford to be misled by any subtleties of exact definition. And here I take occasion to say, in answer to this newspaper dictum, that the hereditary character of insanity is a perfectly well established fact in medical science, and is recognized as such by the profession, and that, acting as the remote cause, hereditary predisposition has probably more to do with the

development of insanity to-day than all the assigned immediate causes put together. "Visiting the iniquities of the fathers upon the children unto the third and fourth generation" is not a mere metaphor of oriental language, it is a fact; it was true three thousand years ago, it is true now. We say this child does not learn because he has no head, but the real trouble is the father was acephalous before him; what a thousand pities such a father ever had a son; the fool-killer was an important agent in the twilight dawn of civilization which we miss at its noonday. From Lyncurgus to Christianity is an immense advance; he cared for the race and forgot the individual; but may we not be in danger of forgetting the race entirely in our care for the individual? Christianity came down from Heaven with its divine mission to the poor and the outcast, and its promise is that "the meek shall inherit the earth," but should we not draw the line at defectives, and stop the intermarriage of the insane?

Impress upon those who look to you for instruction and guidance that, while in their tender care and sympathy for these unfortunates they will do well to imitate the divine compassion, they shall, as they value the integrity of the race, in their pity stop short of marriage. It is time that the laws which govern heredity were taught in schools other than medical. Sins against the physical no less than those involving the moral nature are far reaching in their effects. Ah, what a moral teacher vice becomes when we see its last stages in a hospital! Sometimes I think I will open a school, for though I am but little of a preacher and less of a teacher, my hospital could furnish a Kindergarten with some striking object lessons. Contemplating the misery resulting from hereditary disease alone, looking on these pitiable wrecks where vice and degeneracy, insanity and scrofula, have left their blight on faces more eloquent of the truth of the inheritance of sin and the wages that it brings than any poor words of mine can be, I wish I could take the young men just breaking ground for the planting of their wild oats, and let these silent teachers speak to them! We sow the wind; "ah, what shall the harvest be?"

No, you do not need to remind me how easily, when its passions are involved, the world forgets the lessons of its philosophy, and as a physician I do not expect to recover Love from his blindness, but all the more I recognize how far up in "the glorious procession of saints and martyrs" some souls will hereafter stand whose lives like their devotions have been single, whose silent purpose has been that the inherited taint of their blood should die out from the world with them. And we have seen in them only single men and women, who being so much occupied in doing good had found no time "to marry or be given in marriage," and so left no children to inherit their many virtues. But perhaps the Great Teacher saw those lives otherwise, and had such in mind when he said for our instruction the words that we are inclined to hurry over as we read, "And some have made themselves eunuchs for the kingdom of

heaven's sake." Too much already the race is poisoned with hereditary taint; yes, as we use language, there is such a thing as inherited disease; it is a sin to conceal it; to deny it is a crime.

The fifteen minutes, for which I thank you, are over. This is indeed a weird paper for teachers, as much out of place with its detention as that of the Ancient Mariner to the wedding guest; but if you censure it from the educational standpoint my apology must be that I have erred with the old Athenian teacher who exhibited a drunken man to his children as a temperance lecture.

Dr. JOHN M. GREGORY was next introduced, and read the following paper:

SOME FUNDAMENTAL INQUIRIES CONCERNING THE COMMON SCHOOL STUDIES.

Are the studies of our common schools wisely chosen? Are the seven branches universally taught in our common schools, and which constitute the sole work of many thousands of these, such as an intelligent parent or teacher would select out of the wide range of knowledge for the whole school learning of many millions of our people? In other words, are spelling, reading, writing, arithmetic, geography, and grammar, and occasionally the history of the United States, worthy to fill the entire time of tens of thousands of schools and to absorb the whole school life of a large majority of our children? Questions of greater apparent dignity may come before us, but none of wider practical import. They may seem to some to have a hint of radicalism, or even of revolution in them, but that is not to alarm us. Human civilization has advanced by the abandonment of old errors and superstitions as well as by the discovery of new truths.

It is time to question our educational theories and processes to the bottom. If they are true and right, we want the proofs; if they are false and wrong in any respect or degree, we ought to know it. While the National Congress, oppressed with a new sense of the immense difficulties and dangers which hang over some portions of the Republic, are discussing with a breadth of view never before exhibited projects of national aid to education, the professional educators of the country, the men whose life-long familiarity with educational affairs has made them experts, may well be asked to reëxamine every question which may concern the work to be done or can practically affect results. And, certainly, no question more nearly concerns that work than the work itself, the education to be given. Why ought these seven studies to be taught, these more than others, and especially these in place of all others? Who selected these studies at the outset? And, if wisely chosen then, do they remain the best to-day?

Many and serious complaints have been made, and sometimes in high quarters, against the meagre products of our common school system, and

though much of this complaint is prejudiced and unreasonable, he is a bold man who dares say that the school system is accomplishing all it ought and all we may rightfully expect. What if a mistake lies at the threshold, and the work undertaken is not precisely the work we need to have done? If our 270,000 teachers have been set at the wrong work or the right work in a wrong way, is not a partial failure certain and unavoidable?

No one will claim that it is a matter of indifference what studies shall be taught and learned in the people's schools; and it is as little to be claimed that the extent to which each study shall be carried is a matter of no importance, since any one study may be expanded into the labor of a lifetime.

THE CHARGES AGAINST THE COMMON SCHOOL STUDIES.

It is of the seven studies as they are taught in the common schools of the country district that I wish to speak. In the graded schools of the more populous districts and in the villages and cities, much change has been made for the better; and to these much of my criticism will not apply.

There are three distinct counts in the indictment which may be brought against these studies:

First. They found their way into the schools by accident, and without the intelligent choice of a person competent to select them.

Second. Having gained their admission to the school, they have, from the undue multiplication of text books, monopolized the school life of our children, to the exclusion of other equally important studies.

Third. They give no adequate return for the time spent upon them.

PROOFS OF FIRST CHARGE.

The proof of our first proposition can be furnished by many of our older citizens, who recollect the school of their childhood. Indeed, but little proof is needed, for I have never heard it claimed that these studies were duly selected out of the wide range of human knowledge as embracing things the most important for children to know or as furnishing the mental exercises most suitable for childhood. The most that can be said in their favor is that they have such a degree of utility that, having gained admission, they have kept their place, and may now properly claim to occupy some share of attention in the school work. Certainly no one in the careful and intelligent review will pronounce them the only studies needed by the mass of the people.

But, though not intended for proof, a brief historical statement of the way in which these studies entered the school will allow us to criticise them with more freedom.

READING IN COMMON SCHOOLS.

The earliest common schools, or schools for the common people, had for their chief end instruction in the art of reading, in order to enable

the people to read the Bible and the psalm book. Such were Luther's schools and the parish schools of England. Orthography came with reading as a necessary step in learning to read. These two studies may, therefore, be counted as having had a legitimate introduction, since the schools were organized in their behalf. Against these our first charge does not especially lie. Nor against writing, which came in as an adjunct of reading, with similar practical uses. These three, indeed, are not sciences, but simply literary arts, which give the mastery over written language. As preliminary to all book learning, they are properly in the schools. To read one's lesson is necessary in order to learn it.

Our second and third counts lie against them with full force. Reading and spelling occupy an undue share of time in the common schools, a proportion of time wholly unnecessary to the proper learning of them; and they afford no adequate return in the knowledge or culture given for the time so occupied. The reading lessons are not stopped when the pupil has become able to read (as Luther would have had him) his Bible and hymn-book, nor when he can read (as we would have him) his text books and the newspaper besides. They continue to go on year after year, filling up in the common school fully one-third of the scant time of the teacher and using up a nearly equal proportion of each child's school days. Long series of readers, made up of scraps of literature, follow each other in seemingly endless procession. Spelling keeps its place beside its sister art, and through the years the pupil passes along the columns of selected words vainly attempting to fix in mind the characters of which they are composed by dint of repeating the names of those characters.

And after all this enormous waste of time and money, the number of pupils who learn to peruse with easy and critical intelligence the columns of the next newspaper or the books they have occasion to consult, or, going beyond the mere silent perusal, are able to render the thoughts of the writer into clear articulation, with proper inflections and emphasis, is very small, and, small as it is, is made up chiefly of those who did not learn by reading in school, but from the private perusal of books furnished them at home or through the Sunday schools.

Spelling, the adjunct of reading and writing, shows a still poorer record and result. The common school pupils are few who in later years can spell correctly even the words in common use, or can write, save in scrawls almost illegible.

It is but fair to state that the reading lessons may be and are sometimes made, by intelligent and skilful teachers, the medium of much valuable information and culture. Under such teachers, the reading lesson teaches history, geography, grammar, language, literature, science, morals, and a hundred things besides. The reading class becomes a school in itself, a school of universal knowledge; but it would be unreasonable and unsafe to expect the ordinary common school teacher to

do such work as this. Only the most gifted and those of ample reading and wide scholarship can thus make one branch of learning an open door to all others.

ARITHMETIC IN SCHOOL.

If now, from the studies which relate to the mother tongue, and which we have agreed have their rightful place in the common schools of the people, we pass to those claiming attention as knowledges, the question as to their value and rightfulness of choice would seem more pertinent. Let us take, first, the most universally studied and most appreciated of the remaining studies, arithmetic. This now holds so high a place in the public esteem that many will be surprised to learn that within the memory of living men arithmetic was not allowed to be taught in some common schools of New England. It is true, as we learn from Governor Winthrop's Journal, that "divers free schools were erected, as at Roxbury and at Boston, where they made an order to allow fifty pounds to the master, and an house and thirty pounds to an usher, who should also teach to read and write and *cipher*." Cipherying to the extent of the four rules seemed needful to them, but it was far from being a common study in the common schools till more than a hundred years later. A writer in Barnard's American Journal of Education relates that the officers in some districts allowed evening schools to be established for teaching arithmetic, but refused it admission among the day school studies. At a still later day, and within the memory of many of us, it was studied for the main part only by boys and young men. Many of the girls neglected it entirely or learned only the four simple rules. It made its way to favor from the feeling that it was in some way connected with our business affairs and would help men to make and save money. No one thought of establishing any comparison between this simple art of numbering and other fields of knowledge, either to ascertain its value in the information it gave or in the discipline it afforded, or to determine how much time it should have.

I do not need to pause here to prove how erroneous or exaggerated the ideas of its value now so widely prevalent. These will sufficiently appear in our future discussion.

THE GRAMMAR STUDY.

English grammar came still later into the common school course, and for a long time held only a narrow space in that course as a study for the more mature and advanced pupils. In the outset it was introduced by some occasional teacher, who, having spent a term or two at the academy or at college, had learned Latin grammar or that strange English grammar borrowed almost bodily from the Latin, and who felt ambitious to show his learning, or, perhaps, benevolently concluded to extend it to his older and brighter pupils. From an occasional study, it became, in time, a regular one, and was extended from the few who first attempted its mastery to nearly the whole body of the children.

The idea of its usefulness to teach correct speech was in after years thought of and made a reason for retaining the study in the schools.

GEOGRAPHY CALLED TO ACCOUNT.

Very many are now living who can remember the first introduction of geography into the circle of our common school studies. I recall now a certain small but thick octavo volume, with a single map of the world folded in opposite the title page, which bore the name *Morse's Geography*. It was occasionally brought to the winter school by the big boys and girls, and when they had exhausted the reading lessons of the *American Preceptor*, the *Columbian Orator*, and the old *Third Part*, they resorted to this geography as a reading book. The poor map was speedily disposed of as an unnecessary incumbrance, and the descriptions of the boundaries, characteristics, productions, &c., of the several countries were read as interesting facts. Occasionally classes would be formed to learn and recite lessons from these mapless geographies, till at length some bookmaker, seeing the chance of introducing a new text book, provided us with geographies fitted up with maps and furnished with innumerable map questions, sufficient to occupy our time for several years. The study became common, and now ranks among the universal requirements of our common schools. Surely no one can claim that the intelligence of school boards, or of wise parents, or of anxious and far seeing teachers selected this from the round of human knowledge and accomplished its introduction on the ground of its superior utility, either as a knowledge or as an exercise of the mind. Entering by accident, it owes its continuance to the enterprise of bookmakers and book publishers. Such is the simple history of the origin of our common school studies.

THE TESTIMONY.

From some articles on "the schools of sixty years ago" in *Barnard's American Journal of Education*, volume 13, we extract the testimony concerning the early schools of New England given by some well known citizens and educators. Noah Webster writes: "No geography was studied before the publication of Dr. Morse's small books on that subject about the year 1786 or 1787." "Before the Revolution and for some time afterwards, no slates were used in the common schools; all writing and the operations in arithmetic were on paper. The teacher wrote the copies and gave the sums in arithmetic, few or none of the pupils having any books as a guide." "No English grammar was generally taught in common schools when I was young." Dr. Webster says the books commonly used in the schools in those days were the Bible, the Psalter, and the spelling book.

Dr. Heman Humphrey, president of Amherst College, wrote in regard to the common schools in his childhood: "The branches taught were reading, spelling and writing. Grammar was hardly taught at all in

any of them, and that little was confined almost wholly to committing and reciting the rules. Arithmetic was hardly taught at all in the day schools. As a substitute there were some evening schools in most of the districts." Hon. Joseph T. Buckingham wrote in his recollections of the common schools of his time: "Reading, spelling, and a little writing were all that was taught." He says a more enterprising teacher at length came and taught some arithmetic.

A. Bronson Alcott, in an article on the schools of his time, *American Journal of Education*, 1866, says: "Until within a few years no studies have been permitted in the day school but spelling, reading, and writing. Arithmetic was taught by a few instructors one or two evenings in a week. But in spite of a most determined opposition arithmetic is now permitted in the day school, and a few pupils study geography." Much more such testimony might be quoted from the same and other sources; but this is sufficient to confirm my statements as to the origin or introduction of these studies.

It may be claimed that a general recognition and feeling of their importance has been at the bottom of the general use of these studies. Certainly their advocates have used no little eloquence and ingenuity in their attempts to urge upon pupils and parents their great importance and the very valuable results to be secured by these studies. We shall see further on whether these arguments have been founded on facts and have proved good in use.

SECOND COUNT IN THE INDICTMENT.

Our second charge that these studies have monopolized the time is sufficiently evident and is the more aggravated by the large increase of school time thus monopolized. Within the past twenty-five years the average school term of our rural districts has increased from five or six school quarters to as many years. It was, perhaps, no wonder that the mastery of the few reading books and of the more simple parts of arithmetic should have occupied the three or four scattered terms spent in school. But with the increase of wealth, and the multiplication of schools, and the higher public appreciation of education, the school terms increased, till now many children, beginning at five or six years of age, attend both summer and winter sessions five or six years and then during the winter sessions for as many more. The school life has been increased to fully five times its former length, and with this increase has come, not an increase in the number of studies, but in the number of text books. Where in former times we had a single text book, we have now a series, and the series is lengthened out by additions both to its upper and lower ends, until it is ready to cover the entire time of the child's stay at school. Thus, arithmetic is presented first in a little book half filled with pictures of objects to be counted, added, and subtracted. There are added to these primary arithmetics, mental arithmetics, practical arithmetics, grammar school arithmetics, high

school arithmetics, and philosophical arithmetics, furnishing applications of numbers to everything on the earth, in the heavens above, and in the oceans that surround us. Rules are multiplied upon rules, new and cunning processes are invented to secure the same result, until enough is provided to occupy the mind of the average student from childhood to ripe years. Certainly very few of the students ever succeed in completing the books.

In grammar the history is the same: grammar in primer, grammar in twelve mo's, grammar in octavo, grammars of diagrams to teach little children the mysteries of speech, and grammars full of great philological discussions. The apparent aim of the authors has been to meet the child with grammar on his first entry into the school and not to leave him destitute of a grammar to study till his last day in school. What shall we say of the geographies, extending from the picture primer through the long drawn series to the huge high school volume and the great treatise of physical geography? The pupil is required to travel in fancy, and with unaided imagination, over the whole broad earth, and to learn the names and locations of towns, rivers, bays, capes, and islands as endless as they are insignificant. Scarcely any attempt is made, and certainly no attempt is availing, to give any definite notion or any interesting knowledge of the numberless places learned. They are seen as little ink spots, sprinkled over the gaudy colored map, with hard, unpronounceable names, and overloading the memory to such an extent that it breaks down under the burden and empties the whole mass of its acquisitions into the dead sea of oblivion.

If now we go to the school room and ask for the introduction there of some studies which may teach the child the knowledge of himself, of the body he inhabits, of the world he lives in, of the myriad forms of life, of being around him, we are met instantly with the cry "We have more studies already than we can teach." How can the child be expected to learn the place or use of his lungs, his stomach, or his liver till he has finished geography, has learned the last town in Siberia, and all the rivers in Patagonia? Would you have him study the plants from which he derives his daily bread, which beautify his home, which shelter him, which furnish him with the material of his arts, you are met with the unanswerable assertion "Why, he has not yet completed his arithmetic!" Thus these studies have come to stretch their lessons over the school life and to exclude all chance of other studies in the common schools.

THE THIRD CHARGE.

I advance now to the third count in this indictment of the common school studies. It is charged that they give no adequate return for the time that is consumed in their study. Having crept into the schools at nobody's behest, except that of some casual teacher, or perchance of the bookmaker, and having continued to expand till they have filled the expanding school life of our American children, they leave these

children to go forth at last from their schooling with returns so meagre, with knowledge so imperfect, so destitute of power and skill, that one may almost raise the question whether the fruitage of school life repays this expensiveness of cultivation. The charge here made involves three distinct parts:

First. Those studies do not make intelligent men and women. They are not capable of producing intelligence. In this respect they are poverty stricken. Could all the people learn these studies of the common schools and learn nothing more, we should never become an intelligent nation. A study in order to produce intelligence must furnish food for thought; it must offer ideas which stimulate and excite mental inquiry, and it must give knowledge which throws light upon ordinary questions of life. It must hold such vital connection with our every day doings and our every day observations that it shall be called constantly into exercise to explain the phenomena, to solve the problems, and to throw light upon the duties which daily meet us.

ARITHMETIC CHALLENGED.

How many such fruitful and stimulative ideas does the arithmetic give? How often is it made the topic of conversation by friends as they meet to pass a social hour? What mind is set in motion by it and attracted into fields of fruitful thinking? What light does it flash upon our common experience, and how far does it serve to solve the great questions of moral, social, and political duty which each soul encounters in its progress through life?

Indeed, arithmetic, as it is ordinarily studied and taught in country schools, is little more than the guessing of so many riddles. The study of the rules and of the principles is pursued only far enough to enable the pupil to perform the examples under them. He studies the rule as a direction for the performance of a set of sums, not as a law of numbers. And having learned the trick of solution under any given rule, the pupil hastens to cipher out all the other examples under the rule by the same formula. When the book is completed he is simply prepared to turn back and to begin and repeat the process. And when a young man twenty years of age comes to the college or university examination, he asks if it would not be better for him to review arithmetic once more. The examination teaches him that he has learned nothing of its principles, that he has studied it in vain.

GEOGRAPHY NON-PRODUCTIVE.

In geography the case is still worse. In the ordinary methods of instruction it is reduced to a sort of game of "hide and seek" on the maps; crooked ink marks running here and there are learned as rivers; black dots stand for cities; fringed lines represent mountains, and the pupil wastes weary months in learning that one dot with an unpronounceable name lies in this corner of the map, another in

that; that the river lines begin at one point on the map and end at another, and often without the faintest conception of the real nature or location of the country that he studies and with no idea at all of the cities, the seas, the islands, the lakes, the mountains, the harbors, whose location on the map he learns.

Thus the pupil loads his memory with useless lumber. It stirs no thought but that of weariness of the lesson. It brings no inspiration; it throws no light; it answers no question. It is simply an interminable catalogue of names of places never, perhaps, seen or to be seen or heard of, a catalogue which fades from memory in a tithe of the time that it took to learn it.

Who is there among us who in travelling or in trading dares trust for his directions to the geography that he learned in his childhood in the district school?

The great principles of mathematical and physical geography, the construction and use of maps and charts, the movements of our globe and the consequences of these movements in the changing seasons; the physical conformation of the continents and its influences upon climate, productions, and human life; historical and commercial geography, with their living interest; the great cosmical facts full of wonder and full of use—these might indeed stir thought and widen out the intelligence; but these are not and perhaps cannot be included in the study for children of the tender years in which geography is commonly taught.

As in the case of reading, so in geography, some teachers of wide reading, extended travel, and much learning have succeeded in making the geography lesson the vehicle of all kinds of information, historical, commercial, and scientific, and the study in their hands seemed rich and productive, but the riches were furnished from their own stores. It would be in vain to ask such teaching from the average district school teacher.

IS GRAMMAR ANY BETTER?

If you turn to grammar the case is no better. Who ever heard grammar made the subject of conversation, unless it was in a company of teachers? Whom does it stimulate to useful thinking unless it be some pedantic scholar? How far does it enable men to understand the daily phenomena of life or settle wisely the great questions of daily interest? Even in speech, the most useful and the most used of all our arts, how much does grammar contribute to our successful mastery of it? It is notorious that some of the best scholars of the grammar classes still talk in the incorrect phrases of their childhood in spite of their knowledge of the rules of grammar. As taught in our country schools it is not the study of language, but the study of parsing and criticism.

We conclude, then, and the conclusion is as certain as it is sad, that the seven common school studies alone and unaided by supplementary

instruction lying outside of their own scopes and text books are not and cannot be sure sources of public intelligence.

SECOND CHARGE UNDER THE THIRD COUNT.

Our second charge is still more serious. These common school studies do not fit their pupils for the ordinary avocations of life. The farmer's son who has filled his seat in the district school in his district summer and winter for eight or ten years does not carry to the field one item of knowledge which enables him to understand any better the soil that he cultivates or the processes of its cultivation. The mystery by which the brown earth builds from the tiny seed stalk and flower and fruit, is to him as much a mystery as ever. His arithmetic, grammar, and geography, his lessons in reading and writing, have not told him one single law that rules in the vegetable and animal kingdom with which his business is henceforward concerned.

Even his own life is a mystery to him, and his own body an unknown world.

The arts by which he is to live and gain a support for himself and family are utterly foreign to all that he ever saw, or heard of, or studied in the little school-house where he spent so many toilsome months and years. The rules of arithmetic give no facility in comprehending animal life as seen in the faithful domestic beasts which serve us or in the noxious vermin which destroy our gardens and our goods. Grammar gives us no aid in preparing or analyzing our food or in accounting for the state of our health. And the geography of the world without furnishes us with no map of the world within us.

But why follow further this discouraging detail? We speak of what is, and not of what need be. Who does not know that common school knowledge and practical knowledge are things as distinct as grammar and grasshoppers. The popular voice has long since pronounced its verdict upon this matter, and men withdraw their sons and daughters from the schools when they deem it time to teach them the practical arts and duties of life. As Herbert Spencer says:

That which our school courses leave almost entirely out, we thus find to be that which most nearly concerns the business of life. All our industries would cease, were it not for that information which men begin to acquire as they best may after their education is said to be finished. * * * The vital knowledge, that by which we have grown as a nation to what we are, and which now underlies our whole existence, is a knowledge that has got itself taught in nooks and corners, while the ordained agencies for teaching have been mumbling little else but dead formulas.

THIRD CHARGE UNDER THE THIRD COUNT.

But thirdly, and finally, if these studies do not of themselves make intelligent people and do not of themselves fit their students for the avocations of life, perhaps they are useful to prepare for further studies, for higher education. No; here again they fail. The complaint from the whole range of all the higher schools, the colleges, medical and law

schools, polytechnic schools, and universities, is that the common schools do not prepare the student to enter upon the higher courses of instruction, do not indeed work in that direction. Neither the subjects nor the methods of study fit the common school pupil for any advanced course. The ordinary student of arithmetic has found but little to help him in the higher mathematics. Geography helps to little or nothing beyond, and English grammar as taught furnishes scarcely the starting point for higher linguistic study in his own or in other languages.

In the great fields of science, of chemistry, of physics, of natural history, of philosophy, even the alphabet, the simplest notions and definitions, have to be learned by their students without the slightest aid from common schools. One chief difficulty that is felt in teaching these sciences in all the higher institutions is that their students are unacquainted with the simplest language of science. Weeks and even months must be expended in giving to the student of botany, astronomy, &c., the simple elementary notions and names which must be known before he can enter upon the study of the science itself, though these are as easily mastered by the child as the name of grandmother, and are mastered by many children of intelligent parents.

CAN BETTER TEACHING BE EXPECTED ?

Now, to all this it may be replied, and doubtless will be by many, that the difficulty is not in the common school studies themselves, but in the methods of teaching them; that when we shall get a better generation of teachers, more thoroughly prepared for their work, whose methods shall be more perfect and whose labors shall be more systematic, this objection will be obviated and better and richer results will be obtained. Such indeed has been the plea for more years than I can remember, and able superintendents and normal teachers have set themselves earnestly and diligently to the task of training up such a body of teachers. But ought not the very difficulty of obtaining this better generation of teachers (the impossibility indeed, that seems, thus far, to have hindered all efforts to train up the requisite number of teachers) to suggest to us the possibility of another conclusion? Let us admit that better teaching brings better results, as is often shown in our graded and city schools. But may it not be that these common studies themselves are so poorly adapted to the child, so unfitted indeed for the common mind and the common circumstances of the most of our children, that fit teachers will rarely be found, or even if found will never attain more than partial success? Must they not succeed, if they succeed at all, by what they add to the studies rather than by what they find in the studies themselves?

Is it not time to seek the solution of the great problem before us in some other direction? Failing to elevate our common schools along this path, may we not be more successful by choosing another? If the teaching of those branches is so commonly defective and scholarship

in them so difficult or so unattainable, may there not be other studies more easily taught and more rich and useful when taught? May we not select a course of studies for our common district schools which shall more nearly meet the natural tastes, capacities, and needs of childhood, which may engage and quicken the native activities of the pupils, and, rousing them to some natural eagerness of pursuit, make their progress and final success to depend less upon the stimulating power and aid of the teacher? And if this new course of studies shall be found also more interesting to teachers, more easily mastered and used by them, will it not also lighten the work of preparation and offer an easier solution to the great scholastic problem of a sufficient force of qualified teachers?

To answer this question of a wiser course of studies for common schools, we must note more fully and carefully the object of all education.

THE TRUE AIM OF EDUCATION.

The great aim of education is, and of right ought to be, the same as the great aim of life. If this aim is simply and solely that of discipline, then the aim of education is discipline. If the aim of life includes the acquisition of knowledge, then education should also include this. And if the great aim of life goes beyond both discipline and knowledge, if it involves the activities of life, its pursuits, its employments, and the whole round of its performance, then education should embrace all these. Both discipline and knowledge are doubtless involved as the necessary conditions of this higher aim, but only as conditions. Discipline has as its end the development of both strength and skill; knowledge has as its object both the nourishment and illumination of our minds. And as our several employments necessarily involve both skill and strength on the one side and intelligence on the other, so they require as a condition of their success a subordinate training and study from which these proceed. But the plans of education for any human being must certainly prove either false or defective which do not include a consideration of the probable employment and destiny. A full education for any human being must take in all the training and knowledge necessary to set him fully equipped upon his career. Our present question relates not to an ideally complete education for one, but to the common education of the many, and for the common duties of life.

NEW STUDIES PROPOSED.

What are the studies then that should be taught in our common schools? I limit this discussion to the common school studies, because in these schools the millions of our countrymen find all the school education they ever receive.

Let it be remembered that I do not propose to banish wholly any one of the seven common school studies. I have admitted that they have

developed a certain measure of utility which entitles them to remain, though in a somewhat changed form and in a much restricted amount.

I only desire to affirm, and with strong emphasis, that these seven studies ought not to hold the exclusive place they now occupy, and that our common schools must remain poor and unsatisfactory till the studies are changed.

But, asking the question wholly anew and with the best light of nineteenth century experience around us,

WHAT OUGHT TO BE TAUGHT IN OUR COMMON SCHOOLS?

I answer, the knowledge of ourselves, physical, mental and moral, and the knowledge of the world in which we live. These are the indispensable knowledges. These the child begins, of necessity, to study in the cradle, and of these he continues to learn more and more till his dying day. They lie at the bottom of our civilization, and are the basis of our arts, our institutions, our wealth, and our well-being. To know the bodies in which we live, their parts and functions, and the laws of healthful living; to understand the mental functions and moral duties on which soundness of mind and right conduct and character depend; to know much of the world, of animal and vegetable life around us, from which our food and raiment, the materials of our arts, and the comforts of our lives come to us; to know the physical features and forces of the world of matter—these are life studies ignorance of which means defeat and death, and the higher knowledge of which means advancing light, increasing power, mastery over ourselves and over our environment. Reading is to be studied as a means of studying these great central studies of man and nature; and all the other common branches are to be made useful and subordinate to these. In plainer words, there should be included among the studies of the people, in the people's schools, physiology, botany, chemistry, zoölogy, physics, geometry, technology, and the elements of political, moral, and social science; not necessarily as sciences, not with text books, not by set lessons and in scientific terms, but as knowledges, lying in nature and open to the eyes and hearts of children, should all these studies have place in the schools, as they have place and uses in life.

The very mention of these studies will be received by many with disapprobation and with the oft-repeated assertion "that children had better be made thorough in the studies already pursued, rather than scatter their time and strength over any additional studies."

IS IT THOROUGHNESS OR THOUGHT?

And just here we meet one of the great popular fallacies which have so long pervaded our schools and help to destroy their influence. The cry has been to be thorough. Teachers have admonished each other, and parents and school officers, leaders and lecturers, have urged thoroughness as the great condition of success in teaching; but it seems

to have escaped the observation of many that thoroughness can never be absolute on this earth; that in regard to education and knowledge thoroughness is a relative term. What would be thorough for a child of 5 would be superficial for a child of 10; and the thoroughness of knowledge required of the teacher of 20 or 30 years of age is practically unattainable by his pupil of 12 and 15. If, then, our children are to be forbidden all study of their bodies, or of the plants and animals with which they have daily to do, till they attain a thorough knowledge of grammar, geography, and arithmetic, then, whatever be the power of the teacher and whatever be the industry of the child, this demand amounts to a prohibition, absolute and impassable, against any advance beyond the old line and law of study and acquirement. It is not thoroughness in the sense of completeness that is needed, and which is probably meant by this popular cry, but clearness of understanding. Let the child know clearly what he knows. Let it be true knowledge as far as it goes, not vague, half knowledge; so we all say.

SCIENCES NOT IN A STRING.

But another popular fallacy lies at the bottom of this demand for thoroughness. It is the supposition that the several sciences constitute a succession of studies varying in degree of difficulty, some of which are adapted to childhood, others to the middle age of youth, while others can be mastered only by the mature mind. Hence it is concluded that one study should be completed by the child before even the elements of other and higher studies are attacked. Nothing could be further from the truth in point of fact. All science begins with simple facts, facts so simple that little children learn them, and all the sciences advance through successive grades and forms of truth till they reach the philosophical stage. Like so many Jacob's ladders, they have their feet in the dust, and their first rounds are so low that the creeping child may reach them. Their sublime summits are lost in the heavens, where only the strongest can soar and the steadiest can stay.

THE CHILD BEGINS THE STUDY OF ALL SCIENCES.

Every child of sound mind and ordinary opportunities will be found, on examination, to have acquired many elementary facts in every branch of human learning. He has begun the study of the whole cyclopædia of science. He distinguishes his ball from his blocks, and knows well enough the contrast between the sphere and the cube. This is the germ of geometry. He easily recognizes the difference between birds and bees or butterflies. He is beginning the study of both entomology and ornithology. He can practically distinguish soap from sugar, salt from vinegar; dreads the fire and delights in the sunshine; and all this is incipient chemistry. He chooses his playthings by colors, knows that unsupported they will fall and break in pieces; sees that force produces motion, and has learned a hundred other facts in physiol-

ogy, physics, and mechanics. He heeds his mother's voice, delights in her smiles, fears her frowns, and shapes his little plans with a cunning that tells that he has already mastered much of the science of mind and morals. Even in arithmetic, geography, and grammar—or rather in numbers, locality, and language—he has made a beginning in nature's own methods, in facts and practice. In short, all nature has been an open book to him; and from his birth he has studied its crowded pages with as much success as delight. Eager to learn, he observes, experiments, inquires, theorizes, tests his theories, compares, classifies, doubts, objects, seeks proofs, learns truths, infers consequences, is full of eagerness to know and name things. His education is going forward without any vacation, till in our foolish anxiety to make him learned in books, and especially in the common branches, we stop his education and send him to school.

THE SAD MISTAKE.

We stop his education, for we have come to believe that until he has acquired his alphabet, learned his a b abs, and spelled his way to reading, he cannot properly begin study. To learn in the proper way he must have a text book. We forget that the volume of nature is God's text book, written in the child's vernacular, the beautiful language of living facts and visible forms. During all this period of his book learning we foolishly count it a mark of idleness for our pupil to chase butterflies, pick flowers, or busy himself with anything else but the primer with which men have supplanted nature's great text book.

Pestalozzi and Fröbel and all the great thinkers and writers on education have protested against this substitution of book study for the study of nature. Rousseau would not allow his ideal pupil Émile to begin book study till fourteen or fifteen years of age, and the Germans require the child to be taught orally from six months to two years before being set to learn to read.

THE BETTER WAY.

If in place of seeking to force the pupil through all the stages of some one study, from its simple primer facts to its high philosophy, we should follow the course of nature, we should teach in the primer or primary grade the primer or primary elements of all knowledge.

As the child advances in each and grows in strength and understanding, we should add successive facts and truths in all these sciences, taking care to emphasize only such as may be of more utility.

When the advancing years require us to fit the child for its chosen pursuits and the widening fields of knowledge compel some selection to be made, then we should choose those studies, and those alone, which promise to have some bearing upon daily duties and the chosen destiny of the pupil.

It is not forgotten that knowledge is fading in character, and that all knowledge which is not made bright by practice and kept bright by use

will speedily pass from memory; and this will be equally true of all sciences of nature and of the common school studies. If the unused geography and arithmetic are soon forgotten, so also will be the unused botany and chemistry. But so, too, skill and strength, the twin products of the much vaunted discipline, also fade and perish if not kept bright by use. Neither knowledge nor skill abides in full vigor if left to lie in idleness.

But which knowledge will be most likely to be kept bright by frequent recall, the common school branches or that which concerns the ever present scenes and powers of nature? Will it be the geography of Asia, Africa, and Europe, or the botany of our door-yards and gardens which will be called into daily use? And what mental judgments will be most frequently repeated in daily life, those of the higher arithmetic and grammar or those which concern our physical condition and the phenomena of life and nature around us?

THE GERMAN SCHOOLS.

Now, lest all of this advocacy of another course of studies for our common schools shall seem unsupported speculation, let us turn for a moment to the common schools of another people among whom the branches of study were selected by wise leaders and under a set of conditions different from those which influenced our own. The German common schools, dating from Luther, may claim to be the oldest in Europe or America. The German and American school systems grew up entirely independent of each other and without communication between their founders. They may be looked upon, therefore, as two distinct answers to the same problem.

The study plan of the German common school, as reported by Dr. Stowe, embraces the following branches: For the youngest pupils, from 6 to 8 years old, (1) oral teaching in the exercise of the powers of observation and experience, including religious instruction and the singing of hymns; (2) elements of reading (after the oral teaching has gone on for six months); (3) writing; (4) elements of numbers.

For the more advanced pupils, 10 to 12 years old, the study plan includes (1) exercises in reading and elocution; (2) exercises in ornamental writing; (3) religious instruction, Bible history; (4) the German language, with grammar and parsing; (5) "real" instruction, or knowledge of nature and the external world, including the first elements of the sciences and the arts of life, geography, and history; (6) arithmetic; (7) geometry, doctrine of magnitude and measure; (8) singing. In the next grade, 12 to 14 years old, there were added to the foregoing (9) knowledge of the world and of mankind, including civil society, agriculture, and the mechanic arts; and (10) elements of drawing. Such are the common school studies of the German states.

My own later observation confirms the statements of Dr. Stowe, with slight modifications. In a visit to the German schools in Saxony, in

1879, I found the study plan included ten branches, and the teaching had the same prevalence of oral and practical work. As Horace Mann said, "The German teachers have found out that each child has five senses, and they teach the senses."

CONCLUSION.

While I hold fast, sternly and steadily, to the main purpose of this paper, to assert the mistake and wrong of the seven common school studies in their common method and measure, as found in the district schools, and to affirm, on the experience of a hundred years and on the credit of many of the ablest educators of this country, the utter impossibility of the attainment of any high and uniform success in our common schools with these seven studies alone, it would be as unjust as it would be untruthful to deny the immense value of the work done by these schools, in spite of the disadvantages of their bad choice of studies. Aided and supplemented by district and Sunday school libraries, by cheap books, by the most extensive, if not also the ablest, newspaper press of the world, by a vigorous and instructive pulpit, by a political system full of popular inspirations and incitements, by a splendid system of colleges, seminaries, and high schools, and by the almost universal tuition of that noblest of all schools, the school of labor, our school system has helped to train up a people second to no other in public and private intelligence, in vigor of practical understanding, in bold and far reaching enterprise, in high conceptions of human rights and duties, and in all the qualities of a vigorous, free, and advancing manhood. All the other agencies of public good would have been inoperative and useless without the ministry of the common schools. They have been the one mighty gear-wheel which has linked the people to all other machinery of moral, intellectual, industrial, and political elevation. If they have disappointed and are still disappointing the reasonable demands and expectations of their wisest and most earnest friends (I care little for the commonly senseless strictures of their few enemies), no one can deny that they have proved the best investment of public and private funds that our land has ever known, and that they are indispensable to the continued existence and prosperity of our Government. It is this indispensableness of these schools which pleads most loudly for the reform of studies which shall put them in completer harmony with the nature and needs of the childhood they instruct and with that great on-going, eternal, and resistless march of nature and history for which they must fit and train their young recruits.

Dr. ORR, of Georgia, submitted the following resolution; which was seconded by Mr. NORTHROP, of Connecticut:

Whereas the National Bureau of Education was established to assist in collecting and to digest and distribute information in aid of the common schools and other institutions and agencies of education; and

Whereas it is believed that a moderate increase of clerical force and of the appre-

priation for collecting statistics is necessary to meet the increased demands on the Bureau, and that its Commissioner should rank as to salary as an equal of the Commissioner of Agriculture or the Commissioner of Indian Affairs: Therefore,

Resolved, That a committee consisting of five members be appointed by this department, whose duty it shall be to inquire into the needs of the Bureau of Education touching these matters, and make such representations and recommendations to Congress, or to the appropriate committees of Congress, as it shall deem important and necessary.

Remarks in favor of the resolution were made by Dr. Orr, of Georgia; Mr. Northrop, of Connecticut; Professor Hall, of Cambridge, and Mr. Shepherd, of Baltimore. The last gentleman proceeded to remark unfavorably upon the paper which had been read by Dr. Gregory and regretted that there was not time to discuss the views presented. Remarks were made by Mr. Smart, Mr. De Wolf, Mr. Richards, and Mr. Shepherd; and Dr. Orr's resolution was then passed unanimously.

The committee of five appointed by the chair consisted of Dr. Orr, chairman, with Messrs. Marble, Smart, Gove, and Newell. To these Messrs. Philbrick, Armstrong, and Scarborough were afterwards added.

General EATON invited the members of the department to visit the Bureau of Education during the evening.

On motion of Mr. DE WOLF, the meeting then adjourned to meet at 2.30 P. M., in order to have a discussion of Dr. Gregory's paper.

The members of the department then proceeded to the Executive Mansion and paid their respects to President Arthur, being introduced by the Commissioner of Education.

FOURTH SESSION—THURSDAY AFTERNOON.

WASHINGTON, *March 23, 1882.*

Mr. Sheldon was chosen to occupy the chair until the arrival of the president pro tempore.

Discussion of the paper of the morning being in order, Dr. GREGORY said that he was surprised that his remarks had given offence; that they merely gave a résumé of some of the most important errors as to studies pursued in the schools; and although he had presented the matter in a different dress it was by no means new, nor did it differ from the ideas expressed commonly in articles published in educational journals.

Mr. DE WOLF indorsed the paper read by Dr. Gregory.

Mr. SHEPHERD had no doubt that the goal in the mind of all present was the same. The most practical education is that which fits men best for all the conditions of life. Are we not the wonder and admiration of the civilized nations of the earth for the character of our development? And yet it is said in the face of all this that the schools are not practical! He concluded by speaking of the great value of the study of the English language.

Mr. BLODGETT, of Illinois, supported the paper which had been read.

Mrs. POLLOCK, of Washington, spoke in favor of the introduction of the Kindergarten.

Mr. BLODGETT thought that the department should pass some resolution regarding the service to education rendered by **Mr. Henkle**. **Mr. GOVE**, of Colorado, wished the recent death of **Mr. White** to be similarly noticed. Thereupon **General EATON** moved that a committee consisting of Messrs. De Wolf, Blodgett, and Gove draw up suitable resolutions in regard to the death of these prominent educators; which was adopted.

The following paper was received from **W. T. HARRIS, LL. D.**, and on motion of **Mr. MARBLE** it was accepted as a part of these proceedings.

HOW TO IMPROVE THE QUALIFICATIONS OF TEACHERS.

The superintendent of schools finds it his most important duty to create and foster an enlightened public opinion in regard to the province and functions of the system of education under his charge.

Where the people furnish the material means to support the school and choose teachers and superintendents to direct and manage it, public opinion marks out the limit of development, for the teachers and superintendent must represent the will of the people. They cannot successfully establish measures not approved by the community.

On the other hand, if the ideal standard of education is high in any community, means will be found and representatives chosen to realize that ideal.

On the conviction of the people, therefore, the perfection of the school system depends, and no structure has any stability if its educational results are too complicated or too subtle for popular recognition.

From this we deduce our statement regarding the most important duty of the superintendent. The superintendent is a specialist in matters of education. The community has chosen him and set him over a special department, namely, the direction of its schools. He has the best opportunity to learn what the school ought to do for the children of the people, and he can discover the best measures for its accomplishment. Having, as a specialist, to form an ideal of excellence in his department, he has a twofold duty remaining to perform: he must realize this ideal in the administration of the details of his system and he must educate popular opinion in his community to appreciate and support that ideal.

The superintendent cannot consider too carefully the last item of his list of duties. He must make his educational ideal valid in and through the conviction of the people, and never allow himself to suppose that he has discharged his duties when he has discovered the educational needs of the people and organized the details of an efficient system to supply those needs.

It is unfortunate for the cause of education that so many excellent superintendents have neglected this third duty, and have even rejected its requirements as unworthy of attention from men with a high sense of honor. They have seen the political demagogue and his base flattery

of the passions of the multitude, corrupting them for the sake of perpetuating his own selfish power. Any appeal to the people, any means used to influence the people directly, seems to be objectionable on the score of demagoguery.

Holding this view, our able superintendent devotes himself to discovering educational wants and perfecting his work of instruction and discipline, and he haughtily demands the support of the community and expects their confidence as a matter of right and justice due to himself. If the people take a different view and are dissatisfied with his exercise of power, and in the end overturn his establishment, he assumes the air of a martyr and finds his consolation in enumerating the petty circumstances of his persecution by low minded enemies while he was pursuing the strict and narrow path of duty. The people who removed him simply call him impractical, and relate a few instances of his stubbornness in carrying out his abstract regulations where they conflicted with the customs and usages of the community. He insisted on applying his abstract rule of industry for all the children, in cases where study at home ruined the eyesight of Mr. A's son, or regularity and punctuality were insisted on so strenuously that Mr. B's daughters would go to school when not fully recovered from a fever, and the consequence is the death of one of them; or, in order to preserve the furniture of the new school-house from the wear incident to use by children not seated for study as in regular school hours, a regulation requires all pupils to remain in the open air until the bell rings at five minutes before nine o'clock, when all must form lines in the school yard and march into the building in military order. This being rigidly adhered to, a very inclement morning has caused much suffering and some cases of severe illness.

These are serious evidence of impracticability, "of a lack of common sense," as the people will tell you. But even when the teacher or superintendent is very discreet in all matters of administration of the schools, if the parents feel themselves treated without respect and due consideration they will misinterpret the teacher's motives in a multitude of instances and accept an unfair account of much that he has done, and thus come to view him as lacking disinterested regard for duty or else as lacking common sense. "Common sense" differs from the other kind of sense in taking into consideration all the circumstances of the thing, all that has interest in *common* with the thing; while the lack of common sense shows itself in the tendency to view its own subject of interest out of its proper relations to the rest of the world; it gets so close to its object that it is exaggerated by the perspective, and the great world is hidden from view by the mole hill in the foreground.

The educator who lays all this stress on his first and second duties and neglects the third one is like the architect who draws an excellent plan on paper and then builds a beautiful structure with hewn stone and the best of mortar, but who has neglected the preparation of a proper foundation. After a short time cracks begin to appear in the walls,

the structure becomes dangerous and must be pulled down. In order to complete our comparison we must imagine our architect extolling the merits of his plans and the convenience of his building-for human uses; it was a thoroughly rational contrivance to shelter man from the elements and give him light, heat, and ventilation, and room for all his needs. What a calamity, therefore, that it must now be pulled down. That he should not recognize the necessity of planning and building with reference to the foundation as well as with reference to the human uses for which the building is erected, would totally unfit him for the business of architect and builder. But there are many educators who cannot see that the superintendent should look constantly to this foundation of the institution under his charge, and build all his improvements on the foundation of the convictions of the people, and take care to buttress all the walls upon distinct and explicit recognition on the part of both parents and pupils. In our country and time no system of managing any institution will achieve a permanent success unless it is based upon and interprets correctly the instincts and convictions of the people and unless it is made to *seem* to the people what it is in reality.

"Three things govern the world," says Goethe: "love, wisdom, and appearance." Love is correct sentiment, wisdom is correct insight, appearance is the seeming of being; and, whether false or true, seeming will furnish the foundation for practical action. False appearance will lead to lame, impotent deeds; true appearance alone will furnish a basis for positive, rational deeds. Love and wisdom will not diffuse themselves for the blessing of mankind unless their mode and manner of appearance is looked after and unless the appearance of their recipients or objects is understood.

It seems strange, at first, that the wisest literary men of our century should lay so much stress on appearance (or mere seeming; the German word is *Schein*). But Goethe had looked into the political changes which announced their advent in our own Revolution and subsequently in the French revolution.

After the battle of Valmy, in which he saw with his own eyes the first defeat of allied monarchical power by insurgent French democracy, he said to the officers of the defeated German corps with whom he had approached the position of the enemy that morning: "Gentlemen, to-day you have beheld the beginning of a new epoch in the world's history." His thought was this: Henceforth it shall not be sufficient for the governing power to rule rationally and make up its accounts by its own standards. Henceforth in the history of this world it shall become more and more necessary to take into account the convictions and desires of even the lowest stratum of the people.

The lower the stratum of the people, the less power have they to penetrate the disguise of appearance and see the true reality. This makes it all the more necessary to see that the appearance of what is true and good is not mistaken by humanity and in its place the false and

evil adopted because it has put on the guise of the true and good and masquerades under its appearance. We must do right and also make it seem to be the right. He who educates the people to know the right by its appearance does as good a service to the world as he who merely discovers the right or who merely organizes it into an institution.

In discussing any topic relating to the duties of a superintendent of schools, therefore, it is necessary to keep in mind this threefold nature of his work. By its light we shall find the solution of many difficult problems that beset the administration of the affairs of education.

I have been led to make this general disquisition on the scope of the work of the director of educational interests because the question assigned to me for discussion before your honored association on this occasion is one that cannot be discussed profitably without a just appreciation of the third principle in the threefold duty of the superintendent.

I therefore announce as the general form of my answer to the question "How can we improve the qualifications of teachers?" bring them to feel by all legitimate means and influences the importance of making themselves strong in their community. They must teach well, and this includes good instruction and good discipline. They must conduct the school well, and this includes a proper reference of their work to the regulations of superintendents and school directors and the most important matter of educating the community at large into a critical knowledge of the quality of a good school.

At first thought the teacher would be supposed to have enough to do if he attended simply to matters of discipline and instruction. In order to reach and largely influence parents it would be thought necessary to visit the parents often, and that this would consume so much time and energy on the part of the teacher as to seriously weaken his fund of strength left for the work of instruction and discipline. But, in fact, it is not expected of the teacher that he shall make a system of visiting parents; such a course would be likely to diminish his influence. It is through the children themselves that the parents are best reached and influenced. The teacher who is careless of the opinion of parents and who feels no direct responsibility to them, governs his school in a very different manner from that of him who keeps the sense of the community constantly before him. Every teacher comes into relations with the parents of his pupils oftenest, as far as personal interviews go, through the failures of his pupils. Irregularity of attendance, want of punctuality, idleness, backwardness in scholarship, and improper behavior are occasions for consultation with the parent. The polite request of the teacher, made in a manner indicating interest in the pupil's welfare from the point of view which the parent ought to take and does take, will nearly always secure the prompt attention of the parent and his cordial coöperation. The coöperation of the parent removes most of the difficulty in managing pupils.

A comparatively small number of personal interviews suffices to estab-

lish the reputation of the teacher for good or bad among the parents of his district. One case of arbitrary exercise of authority or one case of ungoverned temper on the part of the teacher will be remembered by all who hear of it, and all will hear of it. Each parent takes to himself what is done to any one parent, just as each pupil trembles at the punishment inflicted on any one pupil, and perhaps the good pupils suffer more than the bad ones through imagining themselves to be in like circumstances with the culprit.

A sense of responsibility to the good opinion and moral support of the parents in the community makes itself felt on slight occasions, and soon gets recognized by all and gives rise to mutual confidence. The influence upon the pupil of a knowledge of a mutual respect between the teacher and his parents is exceedingly beneficial.

Whatever is done at school is reported at home, though not directly, by the children of each family. The parents form an opinion of the teacher through the fragmentary reports of their children, and that opinion reacts directly on the behavior of the pupils. The experienced teacher, who has long been in the habit of looking beyond his pupils to the families they represent, has learned how to mould opinion through the impressions he leaves on the minds of his pupils.

The superintendent can do no greater service for his teachers than to develop in them this habit of considering all their instruction and discipline as having a direct relation to the pupils, and through them to the parents, and again a still further reaction upon the pupils, which affects them permanently. The wise teacher will not waste his efforts in an impulse on his pupils that will be neutralized at once by the parents. He will find a way of educating the parents by a series of preparatory steps.

These matters of direct relation of the teacher towards parents are very important, but they depend more on the impulse of the teacher than on the efforts of the superintendent.

There are, however, many devices of school management entirely within the control of the superintendent which may be used for the improvement of the quality of teachers' work. I will mention, first, the suspension of pupils. This may happen for irregularity of attendance or for disobedience; suspension is not expulsion. The teacher should not exercise the power of expulsion. Suspension means simply that the pupil has in some way violated the rules of the school in a serious manner, and that the case is referred to the superintendent, who will restore the pupil upon the application of the parent. This brings about a meeting between the parent and superintendent, who must always be conciliatory toward the parent. It is the great mistake of some superintendents that they assume a browbeating air towards parents of pupils who have been suspended. If the parent is punished in that manner the pupil's cause has become the parent's cause, and the effect is *lost on the pupil*.

The parent must be free to complain to the superintendent in regard to the conduct of the teacher, but the superintendent will hold his own counsel. In this way sometimes the fact will be revealed that the parent has lost confidence in the justice or ability of the teacher. In that case the child cannot be expected to profit by the instruction he will receive in that school, but will be a source of insubordination and a destroyer of sympathetic relations between the teacher and other pupils. The superintendent will explain this condition of things and urge strongly the transfer of the pupil to some other school in the neighborhood. If the parent insists on retaining the pupil in the same school he will then see the necessity of correcting his alienation towards the teacher and will seek a personal interview. Under most circumstances transfer of the pupil to another school is the best course. Transferred pupils come among strangers both as to pupils and as to teachers, and they have the best of opportunities to begin a new career. The parent is also far more apt to frown on a repetition of an offence by his child in the new school. He now suspects that the original difficulty was the fault of his own child instead of the fault of the former teacher. The child gets no sympathy at home for his misbehavior and finds obedience the easiest course at school. But the recurrence of trouble at school on the part of the pupil after a case of suspension and restoration to the same school is more likely to be accounted for by the parent as a case of grudge on the part of the teacher.

It is a common practice in our cities to have rigid district lines separating one school from another. It is thought that pupils should never be transferred from one district to another. This habit of preserving strict lines costs a fearful price. The collisions between the teachers and the pupils and the parents ripen into feuds and continue to accumulate, with interest, from year to year, while by the plan of transfer they are neutralized at their inception and a strong attachment arises for each school on the part of its patrons.

There is no better preventive or remedy for the evil of irritability on the part of the teacher than this device of transfer in case of severe complaint on the part of parents. The teacher is made aware of the effects of his or her irritability, and at the same time of responsibility to the community. The peculiarity of the teacher's vocation—being obliged to deal with immature minds and especially with undeveloped wills subject to fits of caprice and irrationality—the very nature of the teacher's vocation tends to produce dogmatism and irritability. The superintendent must, therefore, organize all his means so as to counteract this tendency and so as to protect the teacher against the effects of his own vocation.

Of course it will be conceded that professional training in a good normal school is the best preparation for the new teacher. I have made repeated examinations of the comparative merits of normal school graduates and other teachers. The result has proved to be in favor of the

normal schools by almost 50 per cent. in quality of work. The criterion has been the estimate reported by the principal of the school and confirmed by the superintendent. Promotion for merit has been doubly in favor of the normal graduates. The average teacher stops growing within a short period after achieving fair success, three to five years being the ordinary limit fixed. The teacher educated at a normal school is more likely to continue growing throughout the entire career.

The best device for the initiation of new teachers, whether from the normal school or elsewhere, is what is known in cities as "substituting." The new teacher is sent to fill temporary vacancies as they occur. If a partial failure is made and demoralization takes place on the part of the pupils, the evil is soon remedied by the return of the regular teacher. Meanwhile the teacher goes to fill some other vacancy with a store of valuable experience acquired. It is very difficult for a young teacher to recover control of a school room after it has been lost by the mistakes of inexperience. The plan of sending out such inexperienced teachers as substitutes not only makes them successful in a far less time, but it positively saves many from complete discouragement and ultimate failure. I have known many teachers of long experience, but wretched failures after all this experience, who have become good teachers after being employed a few weeks as substitutes. This practice of sending substitutes to fill vacancies is made more effective in improving the qualifications of teachers by the organization of schools in groups and placing them under supervisory principals. The supervisory principal can manage a system with twenty to thirty subordinate teachers. His work differs from the superintendent's in the fact that he is required to hear at least two regular recitations daily, a circumstance which keeps his supervision at the point of view of the teacher and makes it to differ widely from the supervision of the superintendent.

The links of supervision when developed fully in a large city are three in number and very different in kind. The general superintendent is best qualified to detect one-sided tendencies in instruction and discipline and to take note of the trend of public opinion, give advice to the school board, &c.

The assistant superintendents study details of management more closely and give more stimulus to the application of special methods and the correction of defects in practice. The supervising principal can give daily support to a teacher that is failing in discipline or instruction, and can conduct classes in the presence of the teacher and demonstrate the best methods of instruction, as well as prevent too harsh discipline by having the flagrant cases sent up to him for correction. These flagrant cases he can usually reform by keeping a record of them and having the same pupil bring up a daily record of his behavior from his teacher until he succeeds in attaining a perfect record for several days in succession.

There is still another very important means of improving the quality

of instruction, by introducing into the course of study a certain amount of work to be done orally. The pupil is to have no text book and to have no previous preparation. The teacher must make elaborate preparation and furnish the pupil information, and at the same time, by conversation, connect this new material with related objects that have already come into the child's experience. The oral lessons should not be given on work that the child can already master by his own study, such as the disciplinary studies, reading, arithmetic, geography, and grammar; but they should relate to the sciences of nature and to civil history, nature, and man. Inasmuch as the preparation by the teacher must be elaborate, there should be not more than two of these oral lessons a week. It has been a great mistake to bring in these oral lessons every day. The teacher has been unable to meet the strain on her energies and has been obliged to come to the lessons unprepared. With one long lesson a week in natural science and one in history, the teacher makes weekly preparation and gradually becomes well informed in all departments of natural science and civil history. A teacher continually growing in knowledge of the world will continually improve as a teacher.

This oral work stands in sharp contrast to the regular text book work. Its results, however, continue to reappear in the greater interest which the teacher infuses into the recitation from the text book. Her ability to cross-question and to bring out into clearness all phases of the subject continues to develop. There is and must be a periodical recurrence of a demand on the part of the public for this introduction of lessons in natural science and history into the course of study. These are information studies, contrasted with reading, writing, arithmetic, grammar, and geography as discipline studies, and their methods should be very different. Then they will be mutually helpful. All text book instruction tends to degenerate into parrot-like repetition of words without investigation of the meaning. All oral instruction tends to degenerate into a pouring-in process for the pupil, giving him amusement and saving the hard work for the teacher alone. The school should not give up its information studies because the people cease to clamor for them, nor introduce them at the expense of discipline studies when extremists demand it. The superintendents must be conservative in action and conservative likewise in reaction. For my closing sentence, I return to my main thesis: they must chiefly exert their influence to make the teacher strong in the community.

Messrs. SMART and HOUCK followed in discussion; and Mr. RICHARDS, of Washington, said that the essential in schools is not method but matter; that nine-tenths of the time of the children is spent in memorizing that which never results in anything.

Mr. NORTHROP spoke in favor of the schools of the rural districts, and said that in nine cases out of ten country boys will succeed best.

Mr. SHELDON remembered that Dr. Gregory made an address which

he heard in Michigan twenty-five years ago on practical education, and he discussed the paper under consideration at some length.

Mr. FLETCHER, of Maine, and Mr. NORTHROP made pertinent remarks.

Mr. BLODGETT reported the following resolutions; which were adopted:

Resolved, That in the death of W. D. Henkle, one of the founders of this association, it has lost one of its most earnest and constant laborers, and the cause of education will miss his earnest advocacy of sound and comprehensive methods with his voice and with his pen.

Resolved, That in the recent death of S. H. White, long the efficient principal of the Peoria Normal School and an earnest promoter of the interests of this association, we have lost a fellow-worker whose zeal was untiring, whose judgment was sound, whose friendship was warm and true. He has left valuable contributions in the important field of educational journalism.

The Department then adjourned sine die.

APPENDIX.

REPORT OF THE COMMISSION ON SCHOOL BUILDINGS IN THE DISTRICT OF COLUMBIA.

WASHINGTON, D. C., *March 15, 1882.*

The commission appointed by the resolution of the House of Representatives, dated February 20, 1882, * * * for the purpose of investigating the public school buildings of the District of Columbia, &c., has the honor to submit the following report:

Having duly organized, the commission addressed letters of inquiry to the Commissioners of the District, the board of trustees of the public schools, the superintendents of the public schools, and the health officer of the District, referring to the resolution and requesting information bearing on the matters referred to therein. All of these communications received prompt replies, and the commission takes great pleasure in acknowledging the uniform courtesy with which it has been treated by all parties concerned in the inquiry, and their evident desire to furnish all the information possible relating to its object.

The brief space of time allowed for the preparation of this report has not permitted of so complete an investigation into the character of the buildings, &c., as would have been desirable; and by reason of pressure of other official duties the members of the commission have been unable to devote as much of their time to personal examination of the various schools as they would have wished. Nevertheless, they have been able to visit in person a number of the schools, including specimens of the best and of the worst of both the owned and the rented buildings.

They have also been fortunate in obtaining through the courtesy of the National Board of Health the assistance of Dr. Charles Smart, United States Army, who has made for them a number of examinations of ventilation, including careful air analyses, in buildings selected for that purpose as types. Mr. F. H. Cobb, an engineer of the Capitol grounds, has, at the request of the commission, made a careful examination of all the rented buildings in Washington and Georgetown, with reference to their capacity, sanitary condition, security from fire, amount of rent paid, &c., and this information, together with that furnished by Dr. Smart, and some of the results of the personal observations of the commission, are embodied in a report upon each school building owned or rented.

* * * * *

After having carefully considered the data, * * * and after an examination of the plans of the various buildings furnished from the office of the inspector of buildings for the District, and after having had personal conferences with the Commissioners of the District, the inspector of buildings, the building committee of the board of trustees, and the superintendents of public schools, the commission have come to the following conclusions:

I. The amount appropriated for the construction of new buildings in the District for the last three years has not been sufficient to

more than meet the demand for accommodation due to the annual increase of pupils during the same time. This will appear from the following table, which shows the annual increase in attendance of pupils in the public schools during the last six years:

Year.	Average enrollment.	Increase.
1875	14,417	.....
1876	15,646	1,229
1877	17,112	1,466
1878	18,959	1,847
1879	20,389	1,430
1880	21,600	1,211
1881	22,061	461
Total increase for six years		7,644
Average annual increase for six years		1,274

The amount of additional accommodation provided during the last three years by the erection of new buildings has been about 1,320 pupils annually. It is believed that this statement sufficiently accounts for the fact that there has been little or no diminution in the number of rented buildings, notwithstanding the number of new buildings which have been constructed.

The following table shows the total number of school-rooms owned and rented in the District at the present time, which gives an average of 55 pupils per room:

	White.	Colored.	Total.
Owned	180	109	289
Rented	84	25	109
Total	264	134	398

The large school buildings that have been erected in the District during the last three years have received careful examination. The general plan of all these buildings is considered fairly satisfactory, and they are superior to some and equal to the average of school buildings in other large cities of this country. They have been as cheaply built as is consistent with the purpose for which they were designed, no money having been used for architectural effect or ornament of any kind. They include the Peabody, Henry, and Force school buildings and the one at the corner of Tenth and U streets. The plans of the Peabody and Henry buildings were selected by prize competition.

The principal defect, from a sanitary point of view, in all these buildings is in regard to the fresh air supply, which is entirely insufficient. The method adopted for this purpose is to admit the air through a perforated plate placed beneath the sills of four windows in each room. Having passed through this plate the air is supposed to pass downwards through a narrow slit in or behind the wall, and to enter the room at a level with the floor, and then pass up through a steam radiator which is placed against the window. The sum of the area of the clear opening in the external plate of each window is from 22 to 25 square inches, so that the area of clear opening for the supply of pure air to the room is

from 88 to 100 square inches, giving an average of about two-thirds of one square foot. When it is remembered that this is intended to supply fresh air for 60 children, each of whom should have as a minimum 30 cubic feet of air per minute, it will be seen that it is simply impossible to obtain such a supply through the openings provided, which in fact will hardly furnish 5 cubic feet per minute per pupil. In most of the rooms at the time of the examination these fresh air openings were found to be entirely closed and even when open, in a majority of cases, very little air was entering through them. It would appear that they are kept closed in part to prevent the freezing of the condensed water in the radiators and in part to avoid draughts upon the children sitting near them. The greatest part of the supply of air for the school rooms in cold weather comes directly through the brick and plaster walls of the rooms, especially on the windward side of the building, and from the large central halls, the doors and transoms into which from the several rooms are usually kept open. Examinations showed that in most cases a strong current inwards existed in the lower part of the open doorways.

In the Tenth and U streets building the foul air flues in the external walls are so arranged that at times the two large aspirating ducts on the opposite wall pull against them to such an effect that there is a down draught through the external foul air flues into the room. The large central aspirating shafts in these four buildings appear in the main to work well. Each school-room has, opening into these shafts, registers, one-half near the ceiling and the other near the floor, amounting in all to four square feet of clear opening. The velocity of air at these openings was found to vary from 80 to 200 feet per minute. The maximum would give 800 feet per minute removed as the work of these shafts. The amount which should be removed from the room to give 30 cubic feet of air per minute to each child would be 1,800 cubic feet per minute, or more than double the work actually effected by the aspirating shafts. The heating apparatus in these buildings is altogether insufficient to heat during cold weather the amount of air supply which should be furnished. To effect this, both the amount of radiating surface and the size of the supply pipes would need to be largely increased.

There is no provision in any buildings for diminishing the temperature of the incoming air without totally cutting off the supply of heat, and when the rooms become overheated, as appears to be not unfrequently the case, the only method of cooling is to shut off the heat and open the windows, thus creating draughts. In the Peabody and Henry buildings, the building on the corner of Tenth and U streets, and in the Curtis building, a simple bell trap in the floor of the basement is the only protection against the entrance of sewer gas into the buildings. These bell traps are entirely unreliable for this purpose, and as a matter of fact in the Henry and Curtis buildings, and also to a slight extent in the Peabody building, the gases from the sewers were found to be passing through this trap into the basement. As the air of these basements communicates freely with the upper part of the building, and forms, as has been pointed out above, one of the main sources of supply for the school rooms, the great danger from this source can be readily understood.

II. Very few of the rented buildings have any special provision for ventilation. The great majority of them are heated by cast iron stoves standing in the room, and have no special arrangements for either fresh air supply or the removal of foul air. It is believed that in the majority

of these buildings great improvement in the ventilation might be effected by simple means and at comparatively small expense by employing ventilating stoves, which shall warm the fresh air to be admitted, and by the insertion, at suitable points, of flues for the escape of foul air.

As regards the rents of these buildings, the commission would refer to the recommendation of Mr. Cobb and of the inspector of buildings.

* * * * *

It must be remembered, however, first, that the assessed value is considerably beneath the actual value, and, second, that while the rent paid for some of the buildings is undoubtedly exorbitant, it is probable that these are the only buildings in the vicinity which can be procured for the purpose.

The locations for new buildings to be erected should be selected with a view to diminishing the amount paid for rental as much as possible.

III. In view of the fact that the construction of these buildings is so far advanced toward completion, and after an examination of their plans and of the work so far as completed, the only suggestions which it appears to be necessary to make at this time with regard to them are: (1) That in view of the recent burning of the Jefferson school building, and that it is alleged that this was due to the fact that the horizontal ventilating flues were combustible, it is advised that all the ventilating flues in the new buildings should be made fireproof (2) That care should be taken by means of properly adjusted valves to secure a free supply of fresh air at all times, whether the heating apparatus be in operation or not, and also the possibility of so mixing cold with the warm fresh air as to secure the admission of a free supply of air at any temperature desired. The system of heating and ventilation by means of indirect radiation in these buildings is, in the opinion of the commission, the only one which will give satisfactory results in large buildings of this class.

Into the details of the sizes of flues, &c., to secure the necessary amount of air supply and removal, the commission has not had time to enter.

IV. The commission is of the opinion that the control of and responsibility for the erection, repairs, and care of public school buildings and property pertaining thereto should be vested in the school board by the Commissioners of the District. It is advised, however, that no new building should be erected, or any important alterations in existing buildings made, until the plans and sites selected for such new buildings, or the proposed alterations, shall have been approved by a board of experts representing the best and most recent knowledge in sanitary science, in pedagogy, and in architecture. In view of the fact that one-half of the expense of these schools is borne by the General Government it seems only proper that it should, through its own officers, exercise the controlling power of approval with regard to the erection of new buildings or important changes in those already existing. Such an important matter as the arrangement of a large school building should not be left to the discretion of a body of men who have no special familiarity with the approved principles of school management, sanitary science, or architecture.

The simplest and most satisfactory way of obtaining such a board of experts would be to have them appointed by the President, who would probably have no difficulty in selecting suitable persons from among the various officers in the different departments of the government who are on duty in Washington.

V. *It is the opinion of the commission that the amounts heretofore*

allowed for repairs in the school buildings have been economically used, but that they have been insufficient to meet the current wants. The commission find, however, that under the present system there is no possibility of ascertaining what each individual building has cost in the way of repairs, and it is considered that this is a defect which should be remedied. An account should be kept with each building, not only for its original cost of construction, but for the subsequent cost of repairs, heating, lighting, &c., for purposes of comparison, and to ascertain the relative merits of different plans of construction, &c.

VI. In all buildings which have water closets within the buildings it is desirable that the present plumbing regulations of the District of Columbia should be enforced, and this should apply not only to those in process of construction or hereafter to be erected, but also to those already occupied. It is the opinion of the commission that every school building in the District should be carefully inspected at least once a year with reference to its ventilation, plumbing, and general sanitary condition, by an officer of the health department, and the result of such inspection be reported to the board of trustees of public schools through the Commissioners of the District.

VII. Only a portion of the buildings owned by the District, and none of the rented buildings, are fireproof. As regards the majority of the rented buildings, however, the danger in this respect is comparatively small, since they are only one or two stories in height, and the stories are so low that, in case of fire, escape could probably be readily effected by the windows.

* * * * *

VIII. The commission has carefully considered the existing wants of the District for additional school accommodation.

Looking at this side of the question only, it would appear that there is at the present time great demand for additional school buildings. On the other hand, the commission fully recognize the fact that there are great and urgent demands upon the revenue of the District for other purposes, and more especially for drainage, sewerage, and for putting the streets into a proper condition, and also that the rate of taxation upon the property owners in the District should not be materially if at all increased. It is because this last point has been kept in view that the commission has refrained from commenting in detail upon the defects which are found in the existing school buildings, even in the best, or from urging the erection of such buildings as would be considered, in the light of the combined requirements of modern sanitary and pedagogical science, as model schools, since to secure the amount of light and fresh air which should be furnished in such a building necessitates not only a certain increase in cost of construction over that which has been heretofore expended upon school buildings in the District, but also additional cost for their maintenance, more especially as regards heating, since in cold weather the fresh air to be supplied must be warmed, and if the proper amount is supplied the cost for fuel must be increased to correspond. Taking all these things into consideration, it is the opinion of the commission that for the next three or four years at least the sum of \$100,000 per annum should be expended in the construction of new buildings upon plans to be approved by a board of experts, as above suggested, and that, setting all other considerations aside, it will be much more economical to make this expenditure than to pay the rents of the structures which these new buildings would replace.

In the plans of buildings to be hereafter erected, the commission consider that the following points should be insisted on, concurring

with regard to them with the report of a special committee of award upon plans for public schools, as reported in the Sanitary Engineer for March 1, 1880, with certain modifications relating more especially to the conditions in the District:

1. All sides of the building shall be freely exposed to light and air, for which purpose they shall be not less than sixty feet distant from any opposite building.

2. Not more than three of the floors, better only two, shall be occupied for classrooms.

3. In each classroom not less than 15 square feet of floor area shall be allotted to each pupil.

4. In each classroom the window space should not be less than one-fourth of the floor space, and the distance of the desk most remote from the window should not be more than one and one-half times the height of the top of the window from the floor.

5. The height of the classroom should never exceed fourteen feet.

6. The provisions for ventilation should be such as to provide for each person in a classroom not less than thirty cubic feet of fresh air per minute, which amount must be introduced and thoroughly distributed without creating unpleasant draughts or causing any two parts of the room to differ in temperature more than 2° Fahrenheit, or the maximum temperature to exceed 70° Fahrenheit. The velocity of the incoming air should not exceed 2 feet per second at any point where it is liable to strike on the person.

7. The heating of the fresh air should be effected by indirect radiation.

8. All closets for containing clothing and wraps should be thoroughly ventilated.

9. Water closet accommodation for the pupils should be provided on each floor.

10. The building should not occupy more than half the lot.

All of which is respectfully submitted.

JOHN S. BILLINGS,
Surgeon, United States Army.

JOHN EATON,
United States Commissioner of Education.

EDWARD CLARK,
Architect United States Capitol.

CIRCULARS OF INFORMATION

OF THE

BUREAU OF EDUCATION.

No. 3-1882.

THE UNIVERSITY OF BONN.

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LETTER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., September 13, 1882.

SIR: There is a great demand upon this Office for information concerning university education in Germany. Much has been published on this subject in this country and abroad, but few of the publications contain detailed statements of the inside working of these great institutions of learning, which justly excite the admiration of the whole civilized world.

Some time since this Office received a valuable document published by the newly organized French Superior Education Society, composed of the most prominent educators, statesmen, and philosophers of France. Among other interesting articles, this document contains a very elaborate statement of the history of the present organization and the courses of study of the famous University of Bonn, in Prussia.

The article was written by M. Edmond Dreyfus-Brisac, of Paris, one of the secretaries of the society, who went to Bonn with letters of introduction from the French ministers of foreign affairs and of public instruction and from M. Laboulaye, president of the society. It forms the first of the series of sketches of foreign universities published by the society.

As Bonn is a fair type of a modern German university, this statement will answer many questions that might be asked concerning all that pertains to university education in that country.

This article, summarized and in part translated, is recommended for publication as a circular of information.

I am, sir, very respectfully,

JOHN EATON,
Commissioner.

The Hon. the SECRETARY OF THE INTERIOR.

Publication approved.

H. M. TELLER,
Secretary.

1. The first part of the document is a list of the names of the persons who have been appointed to the various positions of the Board of Directors of the Corporation.

THE UNIVERSITY OF BONN.

BONN AND ITS FIRST UNIVERSITY.

Prussia has ten universities. Bonn, although the youngest of them, has its history, as has the city where it is situated. Tacitus frequently mentions Bonn (Bonna, *Castra bonnensia*), a fort on the Rhine which was doubtless built by Drusus. Excavations in 1818 facilitated the determination of the spot where the Roman fortification was situated, namely, in the northern portion of the present city, at the outlet of the road which is now called Steinweg.

The importance of Bonn dates only from the day when the archiepiscopal see was transferred from Cologne to this place. The secular struggle between the archbishops and the citizens of Cologne had just been terminated by the battle of Worringen (1228). The defeated archbishops withdrew first to Brühl, and afterwards to Bonn.

Bonn was besieged several times, especially during the Thirty Years' War and that of the Spanish Succession. The electors of Bavaria were at that time united in a league with France against the house of Habsburg. In 1689 Frederick III, elector of Brandenburg (later, King of Prussia, under the name of Frederick I), at the head of the imperial army, besieged Bonn. In 1717 the fortifications of the city were demolished in accordance with the treaty of Radstadt.

Prince-Elector Clement August (1723–1761) founded the first chairs of jurisprudence at Bonn. He died February 6, 1761, in the middle of the Seven Years' War. His successor was Count Max Frederick von Königsegg, who was both archbishop of Cologne and bishop of Münster.

Secondary education, formerly in charge of the Minorites (Franciscan friars), had been intrusted to the Jesuits in 1673. A century later, August 16, 1774, the papal bull abolishing the order of the Jesuits was communicated to the members of the Gymnasium at Bonn. The elector resolved to consecrate the possessions of the order to superior education. In 1774 he called together several professors of various faculties to complete the courses at the Gymnasium, and finally, in 1777, he founded the academy.

A brief of 1783 states, among other reasons for the foundation of the academy, that secondary education was insufficient, that the taste for higher education was disappearing more and more, and that the young men of the country were attending other universities, not without danger to their religion. The academy was intended to contribute to the improvement of all phases of instruction.

The academy gave its lectures in what had been the college of the Jes-

uits and at present is the Gymnasium. The lectures were to be public and gratuitous; nevertheless the professors delivered lectures and conducted the so-called repetitions for fees. The courses were opened during the first days of November and were continued until the latter part of September. The programme contained the branches which are taught at present in the Gymnasium; Greek, however, was neglected. Instruction in theology and philosophy was in the hands of the Minorites. There was only one professor of medicine. The faculty of law, the most important, had six professors, one of whom was Philip Hedderich, a Minorite, professor of ecclesiastical law, whose opinions, which were but little orthodox, called forth more than once the remonstrance of the Holy See.

On June 2, 1783, the elector addressed a brief to the convents of his principality, inviting them to contribute towards the support of the academy. The female convents were requested to contribute money, and the male convents to furnish professors or money. This brief accomplished its purpose, despite the protestation of the magistrate of Cologne and the remonstrances of the Pope, who complained that the prince had acted without his authorization, and he insisted therefore upon the removal of Hedderich as a *conditio sine qua non* of his consent.

The convents of St. Pantaleon and of St. Martin, at Cologne, and the Benedictines of Deutz and Braunweiler, sent each a professor to Bonn. These monks taught polemics, theology, history of the church, and diplomatics. Two Carmelites taught Hebrew and Greek for the interpretation of the Old and New Testaments. Moreover, the money furnished by the convents facilitated the appointment of new professors, two for medicine and one for law. Hedderich installed the new professors with a solemn discourse. Among the medical professors was Rougemont, who had gained distinction in his studies at Paris and Lyons. From that time the elevation of the academy to the rank of university was taken into consideration. The electoral government took up this question in the beginning of the year 1784, and the imperial diploma was signed April 7 of the same year.

April 15, 1784, the elector died, and was succeeded by Francis, brother of Joseph II. Spiegel was appointed curator of the new university. Spiegel had studied law and philosophy at Louvain and Göttingen, and he had in several other positions exhibited great talent as an organizer. According to the new statutes, which he wrote, the title of doctor was to be open to every one, without distinction of creed. At the head of the university was a rector, elected every year, and, above the rector, a curator, who had under his control all the institutions of learning in the country.

The inauguration of the new university took place November 20, 1786. The ceremony was of a purely local character. Other universities were not invited; they were simply notified of the foundation of

the new school. The prince spoke in a very liberal discourse in praise of tolerance, which, he said, had always been a principle of government in his state; he knew, he added, how to maintain at all times independence in his relations with the Holy See. He always sustained the professors in their quarrels with the orthodox chapter of Cologne. But when the French revolution was spreading and he feared the loss of his states, he became frightened; several professors had to leave the university after the departure of Schneider, the famous demagogue, who lost his life on the revolutionary scaffold at Strassburg. Schneider had been professor of Greek at the University of Bonn. His departure was an omen of the fall of the university, and in August, 1794, the students had nearly all left. In 1795 the lectures were discontinued; in December, 1797, the university was dissolved. The last professors had refused in a solemn meeting to take the oath of the French Republic.¹

THE NEW UNIVERSITY OF BONN.

Twenty-two years later the university rose again from its ashes: the revolution and France were defeated. Prussia had received the Rhenish provinces as part of the spoils. We cannot better illustrate the spirit which prevailed at the time of the restoration than by analyzing some passages from the discourse delivered by Rector von Sybel at the fiftieth anniversary of the university celebrated in the presence of the king, the queen, and the crown prince of Prussia.²

In 1815 the condition of Prussia could be summed up in four words—much glory, great distress. Although royalty refused to grant the promised liberties, it worked at least for the material and moral development of the country. Immediately after the cession of the Rhenish provinces to Prussia, Frederick William III announced in a proclamation to his new subjects the creation of a university on the borders of the Rhine. There were in this region at that time only the faculties of law at Coblenz and Wetzlar (neither prosperous), and the university of Duisburg, reduced to three professors. Several cities, especially Duisburg, Neuwied, Cologne, and Bonn, wanted to be the seat of the new university. Duisburg based its claim on its ancient titles; the prince of Neuwied offered a considerable subsidy if his capital should

¹ The budget of the university in 1790 amounted to 75,956 thalers; for the triennial period from 1791 to 1793, to 197,261 thalers. In the year 1792-'93, the faculty of theology had 6 professors, the faculty of law 8, the faculty of medicine 4, the faculty of philosophy 8; there were 2 language teachers. During the semester 1791-'92 there were 39 students of theology, 95 of medicine, 46 of law, and 28 of philosophy.

² The festival of the celebration of the fiftieth anniversary of the new university lasted three days. On this occasion the faculties awarded diplomas to savants, among whom I find M. Léon Renier for the faculty of philosophy and M. Pasteur for the faculty of medicine. Representatives of all German universities attended and were bearers of congratulatory letters. Several committees, composed of professors and students, had charge of the arrangements of the fête.

be chosen. During two years the cabinet of Berlin was so absorbed by diplomatic and financial questions that it did not devote itself at all to the realization of its university programme; however, from the year 1816, Cologne and Bonn remained alone in the foreground.

Bonn was said to be a favorable locality on account of the cheapness of the necessities of life, an advantage which has completely disappeared at present. Cologne was recommended on account of the many resources which it offered the school, the professors, and the students, but it was due to the beauty of the site at Bonn that the city was preferred to the Rhenish metropolis, although Minister Schuckmann, in 1816, being outside of the gates of Coblenz, in sight of the Seven Mountains, enthusiastically exclaimed: "The university shall be here and nowhere else."

The president of the council of ministers, Prince Hardenberg, directed the ministerial councillor, Sübern, to study the question. Sübern, an old friend of Schiller and Humboldt and of the liberal protestant school, decided in favor of Bonn, fearing that at Cologne the university might take a sectarian rather than a national character. On the 26th of October, 1817, Schuckmann (formerly in favor of Coblenz) submitted a report to the king, in which he adopted Sübern's conclusions. Minister von Altenstein succeeded him shortly afterwards. This was at the time of the riotous Wartburg demonstration and the revolutionary agitation of the Burschenschaften, and the universities were suspected of complicity therein. Local jealousy also was exhibited. Breslau, Halle, Königsberg, and even Berlin feared that the new university would be established on too large a scale. In order to obtain the means for the establishment of the University of Bonn, von Altenstein had to increase the budgets of the rival universities. It was on the 26th of May, 1818, that Frederick William III signed the cabinet order which designated Bonn as the seat of the new university, allowed the necessary funds, and appointed the opening of the courses for the autumn of the same year.

GENERAL ORGANIZATION—THE UNIVERSITY AND THE STATE.

Frederick William III had founded the second university of Bonn by his own authority. The revolution was defeated; nevertheless it had already borne its fruit. The time of theocratic and feudal power had passed, during which a papal bull and an imperial diploma were necessary for the foundation of a university; thenceforth the state became the only master of education, and the state makes known its will through the monarch and the laws.

According to the Prussian Landrecht (general law) the schools and universities are state institutions. They cannot be established without the consent of the state. Universities are similar to privileged

corporations. The interior organization of each university, the rights of the academic senate, and all questions relating to the transaction of common business are regulated by statutes approved by the state. All the professors and employés of the university are state functionaries. The government and the minister of public instruction are represented at the university by a *chargé de pouvoir*, who has, at Bonn, the name of curator. The powers of this functionary are specially designated in a letter of instruction addressed by the minister to the curator of the University of Bonn, July 8, 1819. According to this instruction the curator, without meddling with the interior organization of the university, must see that the statutes are executed and call the attention of the minister of public instruction to irregularities which may occur. The curator is the necessary medium between the university and the minister; he forwards to his chief, together with his own observations, the annual reports of the senate on the election of the rector and deans, the lists of presentation for chairs, the programme of the lectures, the projects of reform for the institutes, the building plans, &c. The seminaries alone are placed under the almost exclusive direction of the faculties.

The curator has charge of the management of the revenues of the university. He submits every year to the government the plan of a budget, after having consulted the senate, the faculties, and the directors of the institutes; he has, in general, the charge of letting contracts, appointing book-keepers, and managing the other financial affairs of the institution. He watches over the preservation of the university buildings, and may order repairs not costing over 50 thalers and not exceeding one-twelfth of the total expenses estimated in the budget.

The curator has to be invited to all academic festivals, and at official celebrations he has the rank of representative of the minister. It is to him that the professors submit requests for leave of absence. During the holidays a simple notification suffices; but during the sessions the permission of the curator is necessary whenever the absence lasts over four days. As to the rector, he cannot leave Bonn a single day without notifying the curator and designating a substitute.

From this short sketch of the powers of the curator it appears that the government reserves the fixing of the budget, the appointment of the teaching staff, the supervision of instruction, political supervision, and the decision of all questions of general and public interest.

As to the curator in particular, it is difficult to specify the real influence which he exercises. The minister has reserved for himself the definitive decision of almost all questions, which, however, does not mean that the curators are, as it is often said, simple messengers charged with forwarding missives to the minister. It is, indeed, impossible for the minister at Berlin to comprehend fully the multitude of questions constantly arising, in regard to some of which he is only too glad to take the almost always impartial advice of the curator, who is an eye and ear witness

of the facts, is generally well selected, and who has this advantage over the academic authorities, that he remains permanently at his post and is enabled to observe all affairs, while they are changed every year. Since the foundation of the University of Bonn there have been only three curators: von Rehfuss, from 1819 to 1842; Bethmann-Hollweg, from 1842 to 1848, and Beseler, who has been in office since 1861. The last gentleman is a man of merit, who formerly played a political rôle in Schleswig. He was appointed curator in consideration of services for the national cause; that is, he possesses a real authority, and his suggestions are generally adopted in Berlin. It cannot be denied that his influence has given a powerful impetus to the creation of new institutes. It is due to him that the University of Bonn will perhaps be, after all his plans have been realized, the best endowed of all German universities. His influence is equally preponderant whenever there is a question of raising the salaries of professors and the annual allowances set aside for the Privat-Dozenten.

The government is represented at the university by still another functionary, who is charged, as it were, with the university discipline, and who bears the title of academic judge. The appointment of these judges dates from 1819, the period when the German governments looked upon the universities as nurseries of revolution and when they consequently deemed it necessary to relieve the rector and the senate of a part of the rights of discipline which had previously formed a part of their powers. The regulation of November 18, 1819; on academic discipline and its maintenance at the universities, gives the minister the power to appoint a judge who (without being one of the teaching staff) has the rank of professor and a seat in the academic senate. The judge is at the same time the legal adviser of the university, and sees that the decisions of the senate are in conformity with the laws. Until recently he had jurisdiction in regard to civil debts and the academic offences of the students. In case of common offences he had to exercise his ordinary jurisdiction by recording the facts and submitting them to the senate if a disciplinary measure had to be taken. He had the right to inflict punishment not exceeding four days' detention in the Carcer (university prison). In case of grave offences (such as duels, riots in public places, offences against the academic authority, mutiny, riotous meetings, the joining of non-authorized secret societies), the judge was likewise charged to investigate the affair and to submit a report to the senate. The senate alone had the right to pronounce the sentence of expulsion from the university or relegation; in all cases the rector had to execute the decision of the senate. The judge was also the medium between the university and the local police; the permission of the judge was necessary if societies of students desired to march in procession, to give balls, concerts, &c. It seems probable that all questions concerning academic discipline will be reopened and that the functions of academic judge will henceforth lose all importance.

ACADEMIC AUTHORITIES.

The general organization of the university had at first been determined by a preliminary regulation of October 21, 1818, which was abolished after the promulgation of the general statutes of the university of September 1, 1827.

These statutes declare explicitly that the university is a state establishment; that it must, so far as possible, teach all the branches of human science; that it is a nursery for all functions in state and church, and that it enjoys the rights of privileged corporations, as determined by the laws of the country.

According to section 5 the university comprises (1) all the professors, ordinary and extraordinary, appointed by the minister and the king, and the Privat-Docenten admitted by the faculties; (2) all the institutes; (3) the matriculated students; (4) the higher and inferior employés of the university.

Section 6 declares that the University of Bonn is "paritätisch" as regards religion, that is to say, that the two faculties of theology which have been created at Bonn enjoy equal rights, as well as the denominations which they represent. There must be in the faculty of law a Catholic professor to teach ecclesiastical law and in the faculty of philosophy a professor of Catholic philosophy and a professor of Protestant philosophy. There are five faculties: Protestant theology, Catholic theology, law, medicine, and philosophy, which last comprises the branches of our two faculties of letters and sciences. Every faculty forms a complete body and has particular statutes which govern it.

A senate, composed of ordinary professors under the presidency of the rector, is charged with the direction of general affairs and of disciplinary authority. The senate is in constant connection with the minister through the curator of the university. The seniority of ordinary professors is regulated according to the date of their official appointment at a German university.

In the broadest sense of the word, a faculty comprises ordinary professors, that is to say, professors who are obliged to deliver regular lectures on the branches of instruction intrusted to them; honorary professors, who are not under this obligation; extraordinary professors, who generally supplement the work of the ordinary professors; and Privat-Docenten. In a limited sense, as in college, a faculty comprises only ordinary professors. The honorary professors may be appointed members of the academic senate, but they do not form a part of the faculty. To do so the ordinary professor must be a doctor or acquire this grade during the year of his appointment. The faculties alone have the right to confer the degrees of doctor and licentiate and to authorize professors to deliver lectures in the rooms assigned them in the university. The faculties are responsible for their teaching, have to see that all the branches are taught, either by members of the faculties or

by extraordinary professors, during the three or four years which constitute the period of academic studies, and have to notify the minister in case one of the principal branches cannot be taught during that period, which is called the *cursus* (academic course). The faculties also regulate the hours for lectures. As regards the choice of hours and lecture rooms, ordinary professors have the preference over extraordinary ones, and extraordinary professors over the *Privat-Dozenten*.

Each faculty annually elects a dean. For the office of dean in the faculty of philosophy the candidate must have one-half of the votes of the faculty. The election takes place two days after the election of the rector. In the faculty of philosophy it is customary to give, as far as possible, each of the principal branches composing it its turn in the deanship. In the faculties of law and medicine each professor gets his turn; in the faculty of medicine, however, the professors with clinics who have more work than their colleagues, generally decline this honor. The election of the deans is submitted to the approval of the minister by the dean in office, the senate, and the curator. A professor may decline the deanship once without giving his motives. The installation of the deans, the rector, and the senate takes place on the same day.

The dean directs the affairs of the faculty, is the guardian of the seal and the statutes, prepares the album, calls together the faculty, presides at its meeting, which may be demanded by one member, and makes known the promotions and required qualifications of those over whom he presides. He is in general charged with the correspondence of the faculty. The meetings of the faculty take place in the senate room; decisions are made by a majority of the votes. The dean is charged with the execution of the decisions of the faculty. If a professor absents himself more than three days during the session he must notify the dean, independently of the curator. The dean inscribes the names of the students in the album of the faculty; he must be notified whenever a student leaves one faculty to enter another. He furnishes the *Abgangszeugnisse* (leaving certificates), with the seal of the faculty, on the presentation of certificates from the various professors. The remuneration of the dean is derived from part of the promotion fees, from a series of small amounts which he receives for writing the album, and the *Abgangszeugnisse*. Whenever the dean is unable to attend to his duties his predecessor takes his place.

The rector is elected every year, on the second or third day of August, by the ordinary professors. According to the cabinet order of August 7, 1854, he is designated by the minister from a list of three candidates. The election of three candidates is done separately, but at the same meeting and without interruption. An absolute majority of the members present is necessary. In case of election by ballot the two candidates who have received the largest number of votes are put on the list; in case of a tie a choice is made by lot. An absent member cannot vote *unless he writes his choice on paper with day and date, together with*

the reason of absence, the sufficiency of which the assembly examines. The rector in office counts the votes and records the result of the election. The curator forwards to the minister the result of the election, giving the number of votes obtained by the candidates. If the office of rector becomes vacant during the school year, the minister decides whether a new election shall take place or whether the rector of the preceding year shall resume the functions of the rectorship. On the 16th or 17th of October the rector in a solemn meeting turns over his office to his successor, places in his hands the seal and the keys of the university, and requests the employés to be obedient to him. After the inauguration of the new rector the senate organizes itself; it is composed of (1) the rector, (2) the prorector or outgoing rector, (3) the five deans, (4) the four members elected by the ordinary professors, (5) the judge of the university (regulations of November 18, 1819). Two of the ordinary members composing the senate go out of the council every year and are replaced by new members elected in a meeting of ordinary professors. The deans, the outgoing rector, the members of the senate, and the ordinary professors promise, by the customary academic ceremony of joining hands, to assist the new rector.

The rector is, next to the curator, the first in academic rank. He represents the university at official ceremonies, he presides in the senate, and exercises higher jurisdiction over the students. The senate, the rector, and the curator form a sort of triumvirate for the management of affairs, for watching over the interests of the university, and for the exercise of the disciplinary power. The rector opens the letters addressed to the senate; he enters the contents of these letters in a journal and then submits the same to the senate. There are two regular sessions of the senate every month. In the letter of convocation, the subjects to be submitted for deliberation must be mentioned. Each member is obliged to attend the meetings, and it is the duty of the rector to report to the curator the members whose absence is not excused. The presence of eight members is necessary in order to take disciplinary measures. When, after a discussion, a vote is taken, the youngest member speaks first and the rector last, and, when a decision has been taken, each member of the senate has the right to have his contrary opinion entered upon the record, and even to appeal to the minister of public instruction. The rector is charged with the execution of the decisions of the senate; whenever the rector is unable to attend to his duties the prorector takes his place. The rector must always act with the consent of the senate, except in extremely urgent cases. Senators are bound to keep secret the deliberations and resolutions of their meetings. The rector presides at the matriculation of the students and the distribution of certificates to the graduates. He is *de jure* entitled to representation fees, and especially fees for matriculation and graduation certificates. The receipts from these sources may be es-

timated at 4,500 marks (1 mark = 23.8 cents). The rector has the title of magnificus and the right to present himself at court.

Generally the rector of the University of Bonn is elected without discussion and by unanimity. According to custom the fifteen or twenty oldest of the professors meet about a fortnight before the election at the rector's house and select three candidates for presentation to the minister, and by election day the choice of the oldest professors has been ratified without protest by the assembly of all the professors. It seems, however, that this year a slight disposition to resistance has arisen, and it is feared that the *bonne entente* will not be completely reëstablished. The University of Bonn offers this peculiarity, which distinguishes it from other Prussian universities, that the assembly of professors submits at once the names of three candidates to the minister. According to custom these three candidates become rector one after another; for example, Professor Hanstein, who was this year the second on the list, will next year be the first on the list of candidates. This mode of electing is not without drawbacks, for during the two years which are between the time of the presentation of the third candidate and his definitive appointment as rector many incidents may happen which might modify the decision of the assembly of professors. All men of judgment are agreed in asking, in this respect, a modification of the regulations.

EMPLOYÉES OF THE UNIVERSITY.

In order to complete the sketch of the organization of the university we must speak of some employés who make part of the academic family; they are the secretary, the questor, and the Pedellen (beadles, messengers, and head servants).

The secretary is bound to attend all the meetings of the ordinary professors and the senate and to record the proceedings thereof; he has to be at the disposal of the rector and the judge, and to inform the rector whenever he discovers anything prejudicial to the university. He keeps a journal (diarium) of all transactions of the university. He is the guardian of all the academic publications and the archives of the university. His income, independent of his salary, consists chiefly of one-fourth of the matriculation fees and one-fortieth of the fees for the doctorate; he receives besides fifteen groschen (1 groschen = $2\frac{1}{2}$ cents) for every graduation certificate and a certain number of other less important fees.

The questor collects the lecture fees for the professors and Privat-Docenten and pays off the professors and employés. We shall have to mention the questor again when we speak of the *Stundung* (respite).

The Pedellen may be compared with our mace-bearers and apparitors. The first Pedell receives all the communications from the students and gives most of the information they need, as names of persons *who rent rooms*, &c. It is his duty to fasten to the bulletin board

of the university the lists of lectures prepared by the professors. The Pedellen do messenger duties for the curator, the rector, the deans, and the judge; they watch over the conduct of the students, and report to the rector the disorders of which they may be guilty; they take all the documents to the professors which have to be signed by them. The Pedellen (generally ex-soldiers and mostly non-commissioned officers) are real functionaries, and although they are of an inferior order they know how to make themselves respected. The Pedellen receive one-tenth of the matriculation fees, one-eightieth of the promotion fees, and a number of other revenues resembling those of our apparitors. Another employé of the university is the guardian of the academic prison.

The inferior employés are appointed by the minister of public instruction on the nomination of the senate and the recommendation of the curator. All the higher and inferior employés are, in the exercise of their functions, under the orders of the curator and the rector.

THE STUDENTS.

Studies preparatory to the university.—Instruction in the German Gymnasium has always been arranged so as to serve as a preparation for the university. At the end of the course in the Gymnasium the students pass an examination similar to our baccalauréat, but with this essential difference, that the examination takes place, not before the faculty, as in France, but before a jury composed of the director and professors of the Gymnasium presided over by a state delegate, who is generally a Schulrath, a functionary similar to our inspectors of academy. I do not need to enter here upon the details of this examination, upon which the article of Monsieur Bréal, in the *Revue des Deux-Mondes*, may be consulted.

There are in Prussia other secondary schools, especially the Realschulen, which have a more technical character. These Realschulen also grant at the end of the course a certificate of maturity (Abiturientenzeugniß). This certificate has long possessed the same value as the Maturitätszeugniß of the Gymnasium as respects admission to a number of careers, as, for example, the polytechnic schools, the schools of mines and agriculture, the professions of surveyor, pharmacist, dentist, veterinary surgeon, post and telegraph employé, officer of the navy, and financial employé; but until recently the certificate of maturity (Maturitätszeugniß) of the Gymnasium was required for all careers to which the university leads. The students of the Gymnasia who did not present themselves for this examination, or who failed to pass, could be temporarily matriculated on a special register of the faculty of philosophy, but only for a year and a half and on condition that they made a written promise not to enter upon any career to which the university gives access. Students in possession of the certificate of the Realschule were in the same condition; nevertheless, on account of the scarcity of candidates, the custom has been established

to admit the graduates of the Realschule to the state examination for the instruction of modern languages.

For a long time past the directors of the Realschulen have protested against the exclusion of their pupils from the university; they held that their schools were as well fitted as the Gymnasia to make young men capable of following the university courses and entering upon all the so called liberal careers in the State. It cannot be denied, however, that the course of study of the Gymnasia differs from that of the Realschulen. If the Realschulen devote more time to the study of geography, history, modern languages, mathematics, and natural sciences, the Gymnasia treat more thoroughly the Latin language, and they alone have Greek in their course. This same difference is found in the examination programme of the two schools; the English language, chemistry, and physics do not form part of the programme of the Gymnasium nor the Greek language of the programme of the Realschule. It also appears that in these examinations the candidates from the Gymnasium have a real superiority in Latin and French over the pupils of the Realschule, while the latter know history and geography better than the pupils of the Gymnasium.

On the 9th of November, 1869, the minister of public instruction, von Mühler, consulted the different faculties of the universities on the advisability of admitting the graduates of the Realschulen to the university and the state examination on the same footing as the graduates of the Gymnasia. The faculties of Protestant and Catholic theology unanimously rejected the proposition of admitting the pupils of the Realschulen, on account of their total ignorance of Greek and their insufficient knowledge of Latin. Of nine faculties of law, seven pronounced themselves against and two in favor of their admission. The faculties of medicine were divided; those who favored admission founded their decision on the fact that the study of natural sciences is more complete in the Realschulen than in the Gymnasia; others who were of a different opinion, expressed the fear that, as education in the Realschulen is generally less thorough than in the Gymnasia, the standard of the university would be lowered. The faculties of philosophy showed themselves, in general, favorable to a reform. Some pronounced themselves for an almost unrestricted admission of the graduates of the Realschulen to the courses of the faculties; others, the majority, favored their admission, but on the condition that they should not present themselves to the state examination except in modern languages and mathematical and natural sciences. All the faculties of Berlin and the senate of the university passed the most energetic resolutions against the Realschulen.

Minister von Mühler carried out the conclusions of the majority of the faculties of philosophy by an order of December 7, 1870. He decided that henceforth the pupils of the Realschulen of the first rank who are in possession of a certificate of maturity should be admitted to the faculty of philosophy, under the same conditions as the graduates of

the Gymnasia, but with this restriction, that the pupils of the Realschulen cannot become professors of any other branches than modern languages and mathematical and natural sciences; they may be employed in all secondary schools except the Gymnasia. By a ministerial order of March 11, 1877, the pupils of the Realschulen provided with certificates of maturity are entitled to Stundung (respite). (This word will be explained later.)

The professors of the University of Bonn did not seem to be generally in favor of this innovation. They held that the students who graduate from the Realschulen have neither the same maturity of mind nor the same aptitude for high intellectual culture as their comrades of the Gymnasia. They said, moreover, that even in the Gymnasia the standard is very unequal in the different parts of the country. While this standard may be very high at Berlin, it is pretty low at Bonn. These are grave questions for the future of university education. Formerly, all the students entering the university had received the same training in the Gymnasium. It is no longer so. It seems to me that it will be difficult to undo what has already been accomplished. The partisans of the Realschule are very enterprising and active, and it is very doubtful whether they will tolerate being driven from ground already won. Minister Falk, in the fall of 1873, called together a conference of directors of Gymnasia and Realschulen and of high functionaries in the administration of schools. They met under Dr. Falk's presidency, at Berlin, and held several meetings; this never-ending quarrel between the Gymnasia and Realschulen was discussed without reaching a satisfactory conclusion.

The following table shows the number of students, provided with the different kinds of certificates of maturity, who have attended the University of Bonn since the reform of Minister von Mühler:

Semesters.	Total number of matriculated students.	No. of Prussian students who matriculated with a certificate of maturity of a Realschule.	No. of Prussian students without certificate of maturity, who matriculated for one year and a half.
Summer of 1871.....	650	3	14
Winter of 1871-'72	747	5	20
Summer of 1872.....	750	1	18
Winter of 1872-'73	752	8	27
Summer of 1873.....	776	5	28
Winter of 1873-'74	813	4	51
Summer of 1874.....	827	8	40
Winter of 1874-'75	724	9	34
Summer of 1875.....	776	9	34
Winter of 1875-'76	707	4	42
Summer of 1876.....	751	11	38
Winter of 1876-'77	793	11	53
Summer of 1877.....	897	22	53
Winter of 1877-'78	859	18	54
Summer of 1878.....	1,063	25	45

While this table shows an increase in the number of graduates of the Realschulen provided with certificates of maturity, it has not become very large, and this seems to prove the needlessness of von Mühler's reform.

Conditions of admission to the university.— One becomes a student by matriculation. The rector presides at the matriculation, i. e., the inscribing of the names in the album of the university in the presence of the secretary. State officials, military persons in active service, members of other institutions of learning, and persons who practise a trade are excluded from matriculation. Students who serve their one year's military term at Bonn may be admitted to the university, and this time is counted in the period which forms the academic course, but during it they are not matriculated. If they were already students before they entered the military year the matriculation is suspended, and may be renewed, without cost, as soon as the year expires. Persons who have been excluded from a university cannot be matriculated without the consent of the minister of public instruction. Priests may be matriculated with the consent of their bishop. For pharmacutists and

dentists who do not possess the certificate of maturity, the authorization of the curator is necessary. Pupils of the school of agriculture of Bonn are matriculated on presentation of a certificate of admission from the director of the school.

A student who desires to be matriculated must present himself to the secretary two days after his arrival at the university and furnish a certificate of good character and a certificate of maturity from a Gymnasium or a Realschule of the first rank. He has to pay 5 thalers (1 thaler = about 75 cents), one of which is for the use of the library. Students who present a leaving certificate from another university pay only one-half of this amount. The student then receives a memorandum, an extract from the regulations of the university, and a certificate of residence.

After matriculation the student has to call on the dean of his faculty to be registered in the album, for which he has to pay one thaler, or half a thaler if he comes from another university. If a student wants to go from one faculty to another, before taking any other steps he must inform the dean of the faculty which he leaves. Matriculation gives the student the right to attend the courses and institutes of the university and to enjoy the academic privileges and franchises. This right of academic citizenship is lost if a student is absent from the university during six months, if he has been excluded from the university, if he has passed the state examination, or if he has accepted a situation. Each student who wishes to leave the university is obliged to apply to the dean of his faculty for a leaving certificate (*Abgangszeugniss*) and for another certificate from the rector; for the first one he pays 2 thalers and 17½ groschen, and for the latter 1 thaler and 14 groschen. The fees for matriculation and leaving certificates amount thus to 10 thalers and ½ groschen, or to 7 thalers and ½ groschen in case the student comes from another university.

Statistics of the students of the University of Bonn.—The number of students matriculated at the University of Bonn in 1878 was 1,063, namely, 105 in the faculty of Catholic theology, 70 in the faculty of Protestant theology, 312 in the faculty of law, 154 in the faculty of medicine, and 422 in the faculty of philosophy. Thirty-five persons had been allowed by the rector to attend the lectures without being matriculated, which makes a total of 1,098 hearers. The following is, accord-

ing to the official catalogue, the list of students arranged by states and faculties:

Prussian students.

Prussian students matriculated in the faculty of—										
Provinces.	Catholic theology.	Protestant theology.	Law.	Medicine.	Philosophy.					Grand total.
					Philosophy, philology, and history.	Mathematics and natural sciences.	Political economy and agriculture.	Pharmacy.	Total.	
Eastern Prussia			2		4				4	6
Western Prussia			5		5				5	10
Brandenburg			10	1	2	2	3		7	18
Pomerania		1	4		2				2	7
Posen					1		2		3	3
Silesia			8	4		1	4		5	17
Saxony	1		2	1	5		3		8	12
Schleswig-Holstein			3	2	1	2	1	1	5	10
Hanover			4	1	4	1	6		11	16
Westphalia		19	48	29	14	18	7	2	41	137
Hesse-Nassau	12	1	8	2	11	9	10		30	53
Rhine province	90	41	193	103	119	66	12	19	216	643
	103	62	287	143	168	99	48	22	337	932

Students from other German states.

States.	Non-Prussian students matriculated in the faculty of—							
	Philosophy.							Grand total.
	Catholic theology.	Protestant theology.	Law.	Medicine.	Philosophy, philology, and history.	Mathematics and natural sciences.	Political economy and agriculture.	
Anhalt						1	1	2
Baden	1		1	1		2		5
Bavaria			3	2			1	6
Brunswick							1	1
Bremen			3		4			7
Alsace-Lorraine					2			2
Hamburg			3			3		6
Hesse-Darmstadt	1	1	2		5	3	2	14
Lippe						1		1
Lübeck		2			1			3
Mecklenburg-Schwerin		1			2			3
Oldenburg		1			3	1		5
Saxony		2			1	1	1	6
Schwarzburg					1			1
Waldeck		1						1
	1	1	18	5	19	12	5	63

Foreign students.

Countries.	Foreign students matriculated in the faculty of—								
	Catholic theology.	Protestant theology.	Law.	Medicine.	Philosophy.				
					Philosophy, philology, and history.	Mathematics and natural sciences.	Political economy and agriculture.	Pharmacy.	Total.
Luxemburg	1		4	1				3	3
France					2				2
England				1	3	7			10
Scotland		3				2			2
Ireland		1							1
Netherlands			1	1		3	1		4
Norway					1				1
Austria									
Galicia							1		1
Romania			1						1
Russia					5	1	1		7
Switzerland		1			3	1			4
Spain					1				1
Asia				1	1				1
America		2	1	2	5	5		1	11
	1	7	7	6	21	19	3	4	47
									68

From the foregoing statistics it appears that of the 932 Prussian students the great majority belong to the Rhine Province and Westphalia. These two provinces furnish 780 students; next comes Hesse-Nassau, with 53.

In the statistics of non-Prussian students it will be observed that the contingent of other German countries is very small.

The number of American and English students is so large because many families from these countries reside in or near Bonn.

The following table shows the number of students by faculties since 1854:

Semesters.	Protestant the- ology.	Catholic theol- ogy.	Law.	Medicine.	Philosophy.	Total.
1854-'55	51	209	233	72	200	765
1855	53	199	269	88	191	800
1855-'56	57	196	218	78	206	755
1856	66	183	223	89	229	790
1856-'57	61	211	213	96	247	828
1857	67	188	229	107	282	873
1857-'58	51	218	157	88	310	824
1858	52	209	156	99	290	806
1858-'59	54	230	116	95	275	770
1859	46	218	119	108	239	730
1859-'60	51	235	127	119	269	801
1860	60	227	138	134	261	820
1860-'61	76	240	128	109	282	835
1861	78	216	124	121	297	836
1861-'62	77	217	118	119	291	822
1862	64	215	138	124	299	840
1862-'63	59	222	150	130	341	902
1863	67	204	166	122	332	891
1863-'64	56	221	135	135	317	864
1864	56	208	181	135	327	907
1864-'65	59	215	182	153	297	906
1865	63	187	198	163	297	908
1865-'66	56	215	151	142	254	818
1866	55	206	159	170	265	855
1866-'67	68	222	150	213	253	906
1867	68	206	179	211	257	621
1867-'68	47	216	171	204	289	927
1868	53	189	178	209	275	904
1868-'69	46	208	173	201	247	875
1869	70	183	206	198	268	925
1869-'70	62	177	188	203	269	899
1870	59	168	194	200	248	870
1870-'71	37	150	125	129	154	595
1871	50	136	153	149	162	650
1871-'72	51	128	192	175	201	747
1872	41	121	184	167	234	750
1872-'73	46	114	202	164	226	752
1873	58	103	232	142	241	776

Semesters.	Protestant the- ology.	Catholic theol- ogy.	Law.	Medicine.	Philosophy.	Total.
1873-'74	57	110	243	137	266	813
1874.....	62	133	246	126	260	827
1874-'75	56	104	201	119	244	724
1875.....	62	99	219	123	273	776
1875-'76	51	76	186	123	271	707
1876.....	47	81	226	127	270	751
1876-'77	45	118	200	118	312	793
1877.....	52	107	244	139	355	897
1877-'78	60	89	219	126	375	859
1878.....	70	105	312	154	422	1063

What strikes us the most of all, on looking over the above table, is the increase in the number of students during the last semester. This is partly due to the presence of the grandson of the Emperor of Germany, who has been studying at Bonn for some time, but the increase is especially due to the change of the beginning and closing of the school year in the secondary schools from fall to spring. Students who would not have entered before next winter under the former arrangement, have matriculated this summer. It will, moreover, be observed that until the last semester the number of students has remained remarkably stationary.

As regards the different faculties in particular, the faculty of philosophy has remained stationary; the faculty of medicine increased from 72 in 1854 to 213 in 1866-'67, and again regularly retrograded to 126 in 1877-'78. The faculty of law has undergone several oscillations; until 1857 it maintained 229 students, then it fell to 116 in 1858-'59. Since 1867 it seems to have taken an upward course, for in 1877-'78 it had 219 students. The number of students of Protestant theology has not changed much; on the contrary, the faculty of Catholic theology, which was with the faculty of law the strongest in 1854-'55 (209 students), fell to 76 in 1875-'76; during the last semesters it seems to have increased a little. It is impossible not to attribute to the capacity and learning of the teaching staff of the university a certain influence on the increase and decrease in the number of students, except in the year 1878.

THE TEACHING CORPS AND THEIR SALARIES.

The Privat-Docenten.—To be logical it seems proper to commence this description of the teaching corps with the Privat-Docenten, who form the body from which the professors are recruited.

To become Privat-Docent, that is to say, to be authorized to lecture at the university, the applicant must be adopted or qualified by the faculty in which he desires to lecture. The preliminary conditions of qualifying are: The doctor diploma, the authorization of the curator, the submitting to the faculty of a dissertation on one of the branches of science to which the candidate devotes himself. It is not necessary to submit a work not yet published; any work already in print, except the thesis for the promotion to the doctorate, is sufficient (ministerial decree of November 23, 1860). It is the value of this dissertation, submitted to all the professors, which, above all else, decides the fate of the candidate. If this work is deemed sufficient the candidate must, according to the statutes, give one or more trial lectures before the whole faculty. Questions are then submitted to him by the professor who lectures on his specialties. This examination is held without any preparation, as the name colloquium, which it bears, signifies.

After these different formalities, the faculty pronounces itself for or against the candidate; in case of success, and this is the rule, the candidate must deliver within three months a lecture in German, to which all the professors of the university are invited.

According to a rescript of November 23, 1860, the candidate who applies to be qualified after having been promoted to the doctorate by the university where he desires to lecture may be exempted from the colloquium.

A candidate cannot be qualified until two years after the close of the academic triennium or quadriennium. The process of qualifying has all the features of a real examination; to be qualified one must pay at Bonn a fee of 25 thalers, gold, and if a colloquium is necessary, 30 thalers.

According to the early statutes the Privat-Docent was only authorized during the two first semesters to give review lessons preparatory to the examinations; he was forbidden to give regular lectures. The faculty had even the right to prolong this period with the approval of the minister. On the other hand, the faculty had the right to shorten this period, in case the Privat-Docent appeared to possess the required capacity or when the teaching corps was insufficient. This liberty of action caused, in fact, the abrogation of this time of probation. Another disposition which limited to four years the "licentia docendi" of the Privat-Docent has been suppressed by rescript of October 5, 1869.

The Privat-Docenten may not lecture on any other subject than the one for which they qualified. Before their programmes are put on the bulletin board of the faculty they have to be submitted to the visa of the dean. The statutes say that the faculty has to inspect from time to time the lectures of the Privat-Docent, watch over his conduct, and make annually a report about the same to the minister of public instruction.

The faculty has the right, in case of a slight offence on the part of the

Privat-Docent, to address him a reprimand through the dean, either in a semiofficial manner or before the whole faculty. In case of grave offences the faculty may pronounce the interdict against him for a whole semester, or even the "remotio" (exclusion). In case of a "remotio" the minister of public instruction renders the ultimate decision. The latter proceeding is not without example.

It is distinctly said in the statutes that seniority does not give the Privat-Docent any right to a chair; the faculty can only consider the wants of the university and the merits of the candidate. The Privat-Docent has to apply to the faculty for promotion to the rank of extraordinary professor, if a vacancy exists, but he cannot apply until after three years of service as Privat-Docent.

There are at present at Bonn 20 Privat-Dozenten, namely, 1 in the faculty of Catholic theology, 2 in the faculty of Protestant theology, 8 in the faculty of medicine, among whom are 4 assistants in the clinics; 9 in the faculty of philosophy, of whom 2 are for philology, 3 for philosophy, 1 for botany, 1 for chemistry, 1 for astronomy, and 1 for geography. I shall mention some of them when I reach the courses of the different faculties. Their daily life resembles very much that of the young agrégés of our faculties. Several of them at Bonn eat at the same table, walk out together, and entertain, generally, very cordial relations. Ordinarily their mode of life is very modest, and they prefer to devote the little they have or can borrow to long trips for the purpose of pleasure and study. As will be seen hereafter, the fees which the students pay them are insignificant. Those who are without means, and to whom the government does not grant any subsidy, are obliged to teach in private schools or to give review lessons to the students. I should judge that a Privat-Docent requires about 4,000 francs a year to live decently in Bonn.

As regards their work, the Privat-Dozenten give lectures principally on accessory branches which are not treated by the ordinary professor. It is an advantage of this institution that it allows young men to give lectures on branches of science all the principles of which have not yet been fixed, and which have not been anticipated by the official programmes. The professors, who are obliged to lecture on one of the principal branches of science, do not have time to devote themselves to this kind of research, and, moreover, they would not feel disposed to do it.

The institution of the Privat-Dozenten has numerous partisans in France; but it seems that the causes which led to its establishment and the functions which it is called upon to perform in the university organization are not always perfectly understood.

In the ancient academic organizations it was hardly necessary to be a doctor to be admitted as a professor by the faculty. This custom, which also existed in our ancient French universities, has disappeared with many others since the revolution. When Napoleon reorganized *our superior education*, the state resumed the exclusive right to appoint

the professors. In this authoritative and centralizing creation, it was necessary to ask guarantees of capacity from the new professors. Competition was the system best adapted to the genius of a people fond of equality. In Germany the ancient universities subsisted in their primitive form, but with the modifications which time gives to all institutions. The doctor title was conferred in too generous and too loose a manner; as it was a source of income to the faculty and the professors therein, the title of doctor was often disposed of for money like merchandise. In order not to encumber the faculties with a crowd of vain and restless doctoral mediocrities, it was decided to require, besides the doctor title, the act of qualifying as described above.

It was the intention of the legislator to recruit the ordinary professors of the faculty from the institution of the Privat-Dozenten. This institution did not offer so regular a recruitment as did a competitive examination; for it did not give any guarantees for finding at any given moment enough professors to fill the vacant chairs. Nevertheless, experience showed that the Privat-Dozenten sufficed for recruiting the faculties, and, in fact, formerly the university professors were seldom taken from secondary schools. Now, however, this has been materially changed, and the number of professors in Gymnasia called by the government to the faculties of philosophy increases more and more. Generally the faculties show themselves adverse to the admission of persons who are without high intellectual culture. But the minister of public instruction goes on; only recently a professor of a Gymnasium was appointed at Bonn against the wish of the faculty of philosophy, and I think that this exercise of authority was not a very happy one. It is not necessary to be absolutely opposed to the recruiting of the university professors from the secondary schools; but one of the advantages of the institution of Privat-Dozenten is to permit the faculties to recruit their members from their own midst. The professor of a Gymnasium may have lost to a certain point the taste for scientific research, properly speaking, and the methods of the Gymnasium are not the same that must be employed at the university. If it is well that the pupil swear by the word of his master, it is better that the student learn to think for himself.

The Privat-Dozent is no longer what he was formerly. Then he was very poor. An ardent worker and full of ambition, he tried to advance, to reach the title of professor, which was quite an ornament in those days, since the educational career was really the most honored and the most brilliant of the careers open to the middle class (*bourgeoisie*.) Competition was active, and many a one did not accomplish his purpose. At present the university career has lost a part of its attractions. Numerous commercial and industrial careers, which are more lucrative, excite the ambition of young men. Since the last German victories, the military career has become entirely without equal. The different corps of army officers absorb, as it were, the intellectual sap of the nation. Young men gifted with physical strength and great intellect join the army in

large numbers, and also many who are ambitious of obtaining a certain position. For those who have political aspirations the professorship leads less rapidly to the goal than the legal career and ministerial functions. Ever since the great development of the state examination, it is seldom that a Privat-Dozent has submitted to what may be called the great examination, which gives access to the judiciary careers.

As the number of persons selected for university professorships on account of ability becomes smaller, their promotion by seniority has, strange to say, been introduced more and more in the recruiting of the faculties, while it has disappeared from the other civil and military careers. On this point all competent men whom I have consulted at Bonn are agreed. A doctor wishes to qualify for becoming Privat-Dozent; he has worked two years since the end of the academic triennium to reach this stage. It would be somewhat cruel to exclude him, particularly as the act of admitting him does not bind the university for the future. After three years' service, the Privat-Dozent requests the faculty to recommend him for appointment as extraordinary professor. The faculty is not likely to reject an amiable colleague who has made every effort during two years to win the favor of the professors. What would, indeed, become of the Privat-Dozent if his request were not granted? Five years have passed since he has finished his university course; it would be too late to enter upon the public careers, for there is an almost insurmountable obstacle in the way, the state examination, which requires a long and thorough preparation. Moreover, the new functionary would be several years later than his former classmates; his career would be a failure. The faculties, therefore, show themselves more and more accommodating. One of the professors told me that he remembers having recommended Privat-Dozenten for extraordinary professorships of whose teaching capacity he had no knowledge whatever. The professor remains, strange to say, in ignorance of what concerns his neighbors in the university, and even in his own faculty. He is so much absorbed by his publications, his lectures, and his social duties that he moves incessantly in a very narrow circle. The professor, of course, had an opportunity to read the books which the Privat-Dozent published, and these publications determined him to recommend the candidate for an extraordinary professorship and later for a regular chair. It will be seen that the professor is hindered by the force of circumstances from keeping a sufficient account of the value of the teaching capacity in recruiting the personnel of the faculty. It can be ascertained pretty nearly how many hearers the Privat-Dozent has, however, or whether he can show an extraordinary success as professor; but the latter case is very rare. Moreover, I had heard it said and repeated that even in scientific work the faculty cannot expect very much from a Privat-Dozent. He has qualified at about the age of 23 or 24, and he is 27 or 28 years old when he asks to be appointed extraordinary professor. A few scientific branches excepted, like mathematics, in which it is not rare to

encounter early productions of much merit, it is impossible that the great majority of Privat-Dozenten should have been able, at that age, to publish really original works.

The institution of the Privat-Dozenten has received a serious blow by a ministerial decision which authorizes the granting to certain poor and highly talented Privat-Dozenten of an annual subsidy of from 1,200 to 1,500 marks, renewable during four years. The sum of 54,000 marks has been set aside for this purpose in the budget of 1877-'78 for the ten Prussian universities. Several Privat-Dozenten at Bonn receive this subsidy. It is evident that this unfortunate innovation will result in changing more and more the very nature of the institution. Formerly the Privat-Dozent taught at his own risk and peril; it was an excellent thing, for it was natural that a young doctor who had passed no competitive examination should not receive any compensation, and that he could expect to reach the grade of professor, which alone assures a salary, through merit only. Moreover, it was formerly only an exceptional case when an extraordinary professor received a salary. At present of 25 extraordinary professors at Bonn only 7 receive no salary. Henceforth the Privat-Dozent is no longer a volunteer; he is almost a salaried functionary, who cannot decently be deprived of the advancement upon which he counts, except in a case of notorious incapacity. If we consider, moreover, that the calls of professors from university to university become more and more infrequent, it can be foreseen that the Privat-Dozent will at last invariably reach the professorship by means known in advance.

The ordinary and extraordinary professors.—Bonn has no honorary professors. Concerning the extraordinary professors we have very little to say. We have just seen how this grade is formed, and that it assures a life annuity which is not very considerable and a title which is of some value in the world. The number of extraordinary professors is not limited; generally, their position differs from that of the Privat-Dozenten in that they may be called upon to complete the courses of ordinary professors when they are otherwise engaged. They are also bound to give every year gratuitously a public course. Bonn has at present 25 extraordinary professors, namely, 1 in the faculty of Protestant theology, 1 in the faculty of Catholic theology, 3 in the faculty of law, 5 in the faculty of medicine, and 15 in the faculty of philosophy. A certain number of them will never become ordinary professors; it is a kind of retreat granted them after a certain time of probation as Privat-Dozenten. For some time past it has been observed that the extraordinary professors were generally quite mediocre. I do not speak of Bonn in particular, but of all the universities. The causes of this are that at the time of the foundation of the University of Strassburg the extraordinary professors were sifted, and that a large number of new chairs have been created during the last few years. It is thus to be hoped that this lamentable condition of affairs will only be temporary.

At Bonn, except in the faculty of medicine, where professional jealousy seems to be violent, every extraordinary professor of average merit, if he is not openly adhering to the Catholic or Jewish religion, has a good chance of becoming an ordinary professor in three or four years. The ordinary professors alone are members of the faculty; that is to say, they alone have the right to make propositions to the minister of public instruction in regard to vacant chairs, to take part in the election of the rector and deans, to confer doctor degrees, and to authorize the qualifying of the *Privat-Dozenten*. According to a ministerial decision of December 23, 1843, they have the same rank as the judges of the courts of appeal, that is, the fourth of the five ranks established in the general gradation of state functionaries.

Ordinary professors are appointed by the minister from names proposed by the faculty. Ordinarily it is the professor of the specialty who really makes the designation, for his colleagues consult him and join him in his opinion on condition that he will return the same favor. It cannot be denied that this custom is open to objection; it may be in the interest of the professor not to favor the appointment of a rival who might prove dangerous to his reputation or his purse. But, as will be seen when we come to the compensation of the professors, the danger is not very great, because the ordinary professors generally are not one another's rivals. Under very different conditions of capacity, they command an almost equal income. As in every semester all the principal lectures have to be given as far as possible by ordinary professors, they participate in the teaching of one and the same branch of science. For example, in the faculty of law, one of the ordinary professors of Roman law lectures on the first part of the *Pandects*, and his colleague, during the same semester, on the second part. I have heard it mentioned, however, that certain professors of the faculty of medicine at Bonn systematically frustrate the appointment of all dangerous rivals. It is here that, aside from the interest of the professor, there comes in that of the practitioner and his fear of seeing himself deprived of a part of his patients.

Professional fellowship plays a less important rôle in the recommendation for appointment than might be feared. The German professor is generally conscientious; he has a profound sentiment of justice and of the dignity of his profession, and it does not enter his mind to make a scandalous recommendation. What makes the influence of *coterie* still less dangerous is the fact that professors are very often called from one university to another. It is seldom that an ordinary professor of a university is selected from among the extraordinary professors of the same university. I have before me the curriculum vitæ of most of the professors of the University of Bonn, and I have been able to ascertain that in Germany we may divide the universities into four categories in their order of importance. To the first class belong, without doubt, the

University of Berlin and the Universities of Leipzig, Munich, and Vienna. In the second class I count, for example, the Universities of Göttingen, Tübingen, and Bonn. A third class, which approaches the second one very closely, comprises universities like Königsberg, Würzburg, Halle, &c. Finally, in the fourth class, we include the smaller universities, like Marburg, Jena, Greifswald, Rostock, &c.

Now, as regards the "call" of professors from university to university, it is usually done in the following manner: An extraordinary professor of a university like Bonn is "called" to become ordinary professor at the University of Greifswald, then from Greifswald he may be called to Bonn. Once at Bonn he could not be called to any other university except Berlin, Leipzig, Munich, or Vienna. Once ordinary professor, even in a university of the fourth class, it not infrequently happens that a professor is called to a university of the first class without passing through the intermediate grades.

The details which I have just mentioned apply, it must be said, to a custom which is already old and which seems likely to undergo modification. The active competition among the different universities had certainly its drawbacks, as, for example, that of factitious propositions on the part of the professors, who expected by threatening to quit the university to obtain the title of privy councillor, or a decoration, or an increase of their salaries. But, as a whole, the advantages of the system were by far superior to the inconveniences it involved; it stimulated the zeal of the professors and the universities, for each university was interested in acquiring the largest possible number of eminent men; moreover, the distinguished savants could entertain a hope of seeing their material condition progressively improved. It is only through a series of calls that the professor can obtain a considerable salary. A distinguished professor who has been early called to Berlin, for example, may draw a smaller salary than a professor at Bonn who has passed through three or four universities without remaining at any of them.

I have said that this condition of affairs tends toward a modification; it was, above all, a consequence of the division of Germany into a large number of small states, of which each possessed a university. Ever since the number of these states has been on the decrease and a certain number of universities united under the sceptre of the same prince, the competition which formerly existed has become less active. Competition was more practised between country and country than between university and university, as the appointment of the professor depends on the choice of the minister of public instruction. What interest could thus a Prussian minister have in the approval of a call with a higher salary of a professor from Königsberg to Bonn, for example? He may still fear to see this professor receive a call from the university of Vienna or from Leipzig; but he can guard against this danger by availing himself of the first vacancy to call him to Berlin, if he thinks best to keep him in the country. The German system is, at present,

tending toward the French system more and more. The German university professors are becoming every day a more united body. In Prussia, for example, an ordinary professor is called from Greifswald to Königsberg, from Königsberg to Bonn or Göttingen, and then, which is equal to the marshal's baton, to Berlin. Berlin tends more and more to centralize all the intellectual forces of Prussia. I have heard it remarked that the existence of certain states, like Saxony, Bavaria, and Baden, serves to counterbalance to a certain point this tendency toward professional centralization. But suppose the unity of Germany complete, and there will be nothing to counterbalance this influence except the Austrian and Swiss universities, the relations of which with German universities have continued to diminish during the past few years. It is possible, then, that we shall witness the fall of the entire organization of the German universities. All clear-sighted minds who take interest in the fate of Germany cannot think without melancholy of this incessant disappearing of past customs and of this march toward a future which is still clothed in darkness.

I have not yet spoken at all of the influence of the government on the call of professors. Although it is not very apparent, it is not without importance. Every day one hears remarks made on the appointment of professors against the wish or at least without the assent of the faculty. In the first place, the minister of public instruction, on his own authority, ordinarily makes all appointments for chairs newly created; moreover, it frequently happens that he announces to the faculty certain names the selection of which would be agreeable to him. The faculty very often shows itself submissive in such cases in the interest of its prerogatives. According to my calculation one out of six appointments is made without the consent of the faculties. These appointments, however, are generally creditable, and even when the political or religious opinions of the candidate are at stake, the minister shows himself less ministerial than the faculties of Bonn; he does not oppose the appointment of men of value except when they have publicly committed themselves against the government. In case of equal standing, the candidates who are friendly to the government are naturally preferred.

The documents appointing the professors are signed by the king. We have seen one of these documents; it sets forth in substance that the professor is charged with the teaching of such or such a branch, that he is bound to give every semester a gratuitous course on one of the principal subjects of his branch, and, besides, a private course; he enjoys, in return, all the prerogatives attached to the functions of professor and an annual salary, which is assured to him for life. The German professor is never retired on a pension; he has the right to lecture, as long as he possesses the strength, on all the branches of instruction belonging to the faculty. Whenever the curator sees that a professor, either in consequence of age or on account of failing health, has

become incapable of performing his professional duties properly, he proposes to the minister to appoint an ordinary or an extraordinary professor in order to reënforce the teaching staff of the faculty. A special amount is set aside in the budget to provide for such cases. This is one of the favorable opportunities of which a sensible Privat-Docent or an extraordinary professor will avail himself to make opposition to the ordinary professor, whose course is insignificant and no longer attended by the students. If he has some talent, this is the best means for him to get hearers and speedily become an extraordinary or even an ordinary professor. I have seen at Bonn several examples of this kind. In the faculty of Catholic theology there is a lack of professors, because three of the four professors of this faculty have become Old Catholics. Their courses have been immediately deserted by the ultramontane students, and the Privat-Docent and the ordinary professor (both orthodox) have a very large number of hearers. Moreover, in the faculty of law there is an extraordinary professor who makes opposition to an ordinary professor of Roman law, whose teaching is not good authority. We shall see further on, in treating the question of fees, that it is only in exceptional cases that extraordinary professors, still less Privat-Docenten, have any chance to make opposition to an ordinary professor.

According to the general statutes the number of chairs of ordinary professors must be 42, namely, 6 for the faculty of Protestant theology, 6 for the faculty of Catholic theology, 6 for the faculty of law, 6 for the faculty of medicine, and 18 for the faculty of philosophy. There are at present 55 ordinary professors, namely, 6 for the faculty of Protestant theology, 4 for the faculty of Catholic theology, 9 for the faculty of law, 9 for the faculty of medicine, and 27 for the faculty of philosophy. This increase is partly due to particular circumstances which we shall mention. The faculty of Catholic theology counts only 4 professors, in consequence of difficulty in recruiting this faculty since the beginning of the "Kulturkampf." There are 9 professors in the faculty of law, although not one new chair has been created. In the faculty of medicine, where the number of professors has been increased from 7 to 9, I notice the creation of a new chair, that of pathological anatomy; the chairs of anatomy and those of surgery and ophthalmological clinics have been doubled; legal medicine is, on the contrary, only represented by an extraordinary professor, Dr. Schaffhausen. In the faculty of philosophy there are 25 professors instead of 18; this increase is explained by the creation of new chairs of modern art, political economy, financial science, and geography. Moreover, a supplementary professor of philosophy had to be appointed, because the ordinary Catholic professor, whose appointment is prescribed by the statutes, had become an Old Catholic. The number of professors of history has likewise been doubled. In speaking of the courses of the faculties we shall enumerate the chairs which they contain.

The salaries of professors.—The revenues of the professors of Bonn and generally of all German university professors, have a double origin. They consist, first, of fees, a revenue which is common to Privat-Dozenten and to professors, and of which we shall speak ultimately in treating the courses for which they are the compensation; second, of a salary, which only the ordinary and extraordinary professors enjoy.

These salaries, as we have said before, are for life; the German university professors are not pensioned. This is a principle which cannot be praised enough; it is of an inestimable value for the high functionaries of education, while the budget of the state is not seriously burdened.

The salaries of the University of Bonn are provided for in the budget to the amount of 375,260 marks, to be divided among 59 ordinary and 28 extraordinary professors. To point out the position which the University of Bonn occupies in this respect among the other Prussian universities, we give the total amount of salaries in different universities:

No.	Universities.	Amount allowed for salaries in marks.	Professors.	
			Ordinary.	Extraordinary.
1	Berlin	558,750	69	60
2	Göttingen	392,310	73	25
3	Bonn	375,260	59	28
4	Breslau	309,630	54	22
5	Halle	288,889	50	25
6	Königsberg	282,009	50	17
7	Marburg	221,194	43	9
8	Greifswald	217,500	40	10
9	Kiel	214,140	21	7
10	Münster (academy)	98,550	21	8

It will be seen that Bonn is, next to Berlin, the best endowed of the Prussian universities, for the number of ordinary professors at Göttingen is considerably larger than at Bonn. These salaries are divided among the various faculties at Bonn in the following manner:

The faculty of Protestant theology is allowed in the budget 36,600 marks; of this amount one ordinary professor receives 9,800 marks (maximum salary), another ordinary professor 6,600 marks. The average salary of the other professors is 5,250 marks. The minimum salary inscribed in the budget for 1877-'78 is 4,500 marks. The salary of the only extraordinary professor of the faculty is 1,200 marks. Each professor receives, besides, 540 marks as an indemnity for house rent.

The faculty of Catholic theology has an appropriation of 25,000 marks. *The maximum salary of ordinary professors is 4,800 marks; the other*

professors receive on an average 4,100 marks; the only extraordinary professor receives 2,400 marks. It appears from these figures that the faculty of Catholic theology has a smaller income than the faculty of Protestant theology. We shall see further on that this inequality becomes more serious by the fact that the professors of the Catholic faculty receive but a small proportion of the fees paid by the students.

The faculty of law is allowed in the budget 61,200 marks; one ordinary professor receives 7,800 marks, another one 7,500, two others 7,200 each, the others on an average 5,400. The minimum salary is 3,600 marks. Among the extraordinary professors, one receives 2,400 marks, another one 1,800 marks, the third one receives no salary.

The income of the faculty of medicine amounts to 57,600 marks; two ordinary professors receive 7,200 marks each; the others an average salary of 7,100 marks; the minimum salary is 4,500 marks. Four extraordinary professors receive from 3,600 to 1,500 marks. Two extraordinary professors receive no salary.

The faculty of philosophy is granted in the budget 188,360 marks; the maximum salary is 10,500 marks; next comes a salary of 9,000 marks, with dwelling-house; then a salary of 8,460 marks and one of 8,100, marks; the other salaries of ordinary professors are on an average 7,300 marks. In the budget of 1878 an ordinary professor is inscribed with the exceptionally small amount of 1,500 marks. One of the extraordinary professors receives 5,400 marks, another one 5,100 marks. The average salary of other extraordinary professors is 2,700, and the minimum salary 1,800 marks (budget of 1877-'78). Four extraordinary professors receive no salary.

All the professors of the faculties of medicine, law, philosophy, and Catholic theology, like their colleagues of the faculty of Protestant theology, receive an indemnity for house rent of 540 marks.

In order to show more clearly the place which Bonn occupies in regard to salaries, we give below the maximum salary of ordinary professors in each faculty throughout the kingdom.

Universities.	Faculties of Protestant theology.	Faculties of Catholic theology.	Faculties of law.	Faculties of medicine.	Faculties of philosophy.
	<i>Marks.</i>	<i>Marks.</i>	<i>Marks.</i>	<i>Marks.</i>	<i>Marks.</i>
Berlin	9,000	.....	9,000	7,200	12,000
Bonn	7,800	4,800	7,800	7,200	10,500
Göttingen.....	7,200	.....	12,600	7,500	9,000
Breslau	6,000	4,800	6,600	7,200	6,750
Königsberg	6,000	.....	5,500	6,000	7,200
Halle	6,000	.....	5,500	5,700	7,500
Kiel	4,800	.....	5,400	6,000	6,000
Greifswald	5,700	.....	6,000	5,700	6,000
Marburg	5,400	.....	6,000	6,000	5,400
Münster (academy).....	.....	5,100	.....	.....	5,100

From the foregoing table it appears that the University of Berlin offers the largest salaries. The faculties of the universities in general may therefore be classified, in regard to the importance of salaries, as follows: Philosophy, law, medicine, Protestant theology, Catholic theology.

ORGANIZATION OF THE COURSES AND PROFESSORS' FEES.

On entering the university building from the Remigius-Strasse, one steps first into a sort of peristyle, where the different courses of the university are posted on blackboards protected by lattice-work. Each faculty has its own blackboard, upon which the university professors write, either in German or Latin, the subjects of the lectures which they will deliver during the semester, together with the hours when and the lecture rooms where they will be delivered. After having traversed this peristyle, one reaches a large rectangular courtyard surrounded by arched galleries; it is upon these galleries that most of the lecture rooms open. The professors usually spend a few minutes in this courtyard before beginning their lectures. Students never cross this yard, but walk up and down under the arches until the lectures commence. Under the galleries is also a small room, called Sprachzimmer, where the professors may wait.

As is well known, the courses of German universities are given not by the year, but by semesters. There are two semesters, the winter semester and the summer semester. The winter semester begins (I do *not speak of the official date*) in reality on the 1st of November and *closes during the month of March*; the second semester begins towards

the end of April and terminates during the first days of August. There are holidays between the two semesters. The effective duration of the two semesters is between seven and eight months.

If the courses are counted which are given in a university during the school year, *i. e.*, during the winter and summer semesters, a considerable number is obtained. In the summer semester of 1878 I find in the faculty of Catholic theology 17 courses of 57 hours a week; in the faculty of Protestant theology 19 courses of 59 hours a week; in the faculty of law 25 courses of 98 hours a week; in the faculty of medicine 50 courses of 142 hours a week; in the faculty of philosophy 101 courses of 275 hours a week. By doubling the number of courses, and by estimating at 8 months the effective work of the university, we reach a total of 424 courses per annum, representing an aggregate of 20,192 hours of lectures, delivered by 75 ordinary and extraordinary professors and 20 Privat-Dozenten.

We know that there are two kinds of courses: the public courses, which the professors are bound to give gratuitously once a week, and the private courses, for which the students pay fees. The number of private courses is by far more important than the number of public courses. If, indeed, we return to the figures cited above, we see that for the summer-semester of 1878 there are 6 public courses of 10 hours' work a week and 11 private courses of 47 hours' work a week in the faculty of Catholic theology; 5 public courses of 9 hours' work a week and 11 private courses of 41 hours in the faculty of Protestant theology; 7 public courses of 11 hours and 18 private courses of 87 hours in the faculty of law; 10 public courses of 11 hours a week and 24 private courses of 108 hours in the faculty of medicine; finally, 31 public courses of 46 hours and 56 private courses of 196 hours in the faculty of philosophy. To these must be added the courses of the Privat-Dozenten, both gratuitous and for pay: 3 courses of 9 hours a week for the faculty of Protestant theology; 16 courses, of which 11 are gratuitous, with 23 hours of work a week, for the faculty of medicine; and 14 courses, of which 7 are gratuitous, with 33 hours' work a week for the faculty of philosophy. It appears from these figures that while the number of public courses is not insignificant, in consequence of the obligation imposed upon each professor to give a course of one hour a week, it is in reality in the private courses that the true work of the university is performed.

In the German universities the faculty of philosophy comprises all subjects which are taught in France in the faculties of letters and of sciences. In the faculty of philosophy of Bonn there are for history 5 private courses by ordinary professors and 2 by an extraordinary professor. A Privat-Dozent gives two courses of geography. For philology, there are 52 courses by ordinary professors, 13 by 5 extraordinary professors; 5 by 2 Privat-Dozenten; 2 ordinary professors give 4 courses on political economy and finance, and two other ordinary professors give 4 courses on fine arts. For philosophy, 3 ordinary professors give 6

courses; an extraordinary professor, 2 courses; 3 Privat-Dozenten, 4 courses. The remaining courses of the faculty of philosophy are devoted to mathematical, physical, and natural sciences.

It may surprise us to learn how the teaching staff of the University of Bonn is adequate to such an amount of work. Each ordinary and extraordinary professor is bound, according to the university statutes, to give at least one public course and one private course a week every semester. As we shall see, the professor in charge of a seminary may be exempted from a public course. It is seldom that a professor remains within the number prescribed by the statutes; very often he gives besides his public course two private courses, for which he receives fees. The German professors do not thus increase their work merely to gain money; they are obliged to do it, to a certain extent, on account of the semestrial organization of the studies. The faculty is responsible for its teaching, and it is the duty of the ordinary professors to see that during each semester all the principal branches are represented in the university programme. The ordinary professors are much interested in giving all the principal courses themselves, and it is only with reluctance and in case of positive necessity that they determine to intrust them to an extraordinary professor. For example, a professor of the faculty of law, Dr. Lörsch, has directed a seminary during the two semesters of the year and given a course of French civil law, a course of German private law, a course of commercial law, a course on the law of exchanges, and a course on the history of Germanic law. Moreover, Professor Hälschner, during the same year, gave a course on the philosophy of law, a course on the laws of nations, a course on German public law, a course on German penal law, and a course on criminal procedure. One is amazed at the amount of work a university professor takes upon himself; he is really overburdened with work.

It is necessary to lay stress on the importance of the semestrial organization of the courses of study in Germany, in order to understand the manner in which they are given and the general method which dominates in the teaching of German universities. The course is called in German Vorlesung. This name corresponds with the reality; the professor almost always reads; instead of extemporizing with the aid of notes, as is done in France, he dictates from a manuscript which, if it were printed, would exactly agree with the stenographer's report of the lecture, and would exempt the student from hearing it at the university. We do not intend to enter here on the objections made to this system. The enthusiastic manner of extemporaneous address impresses itself more forcibly upon the ear of the hearer than the monotonous tone of the dictation. Dictation was excusable at a time when the art of printing did not exist; the courses then took the place of printed books, and it was considered necessary for the student to make a literal copy of the professor's lecture. At present, dictation is nothing but an antiquated system, a tedious mode of teaching, and of little

profit. We must not think, however, that the conservation of this system is exclusively due to the fact that the universities have maintained through ages their primitive organization; it is principally due to the obligation of the professor to give courses on different subjects. It is much easier to dictate from a manuscript once prepared than to extemporize, even with notes; this dispenses with a preparation that would take considerable time which the professor does not have to spare. How could the professor be expected to prepare continuously, during a semester, a course on French civil law, a course on German private law, a course on commercial law, and, in addition, to direct a seminary? It is not less true that with this organization one-half of the courses in each semester are given by professors who have not thoroughly studied their subjects, or, to speak more exactly, by incompetent men.

One would be inclined to believe that this condition of affairs must be favorable both to the extraordinary professors and the Privat-Dozenten; but this is not so, for the student, who will find the ordinary professors in the examination jury, is very much interested in following their courses at the university. Moreover, if this consideration prevails little or not at all, as is the case in the faculty of law, I do not see what established custom or traditional routine could induce the student to prefer to follow the courses of the most insignificant ordinary professor, rather than an excellent lecture delivered by an extraordinary professor or a Privat-Dozent. Only a few extraordinarily zealous students follow the courses of the young masters; they consider themselves obliged to attend besides, or at least to register their names for, the course of the ordinary professor of the same branch. The account we shall give of the different courses at the University of Bonn and of the students registered for these courses, will show that the immense majority of them follow the courses of ordinary professors.

From the foregoing it appears that the Privat-Dozenten and the extraordinary professors, who receive no salary from the state, alike receive but very meagre fees from the students. The fees of the ordinary professors, on the contrary, may reach a considerable amount. The number of students registered for the different courses has enabled us to give the approximate amount of the annual fees paid to the different teachers at Bonn. Before giving the result of our calculations we must say a few words on the manner in which these fees are collected.

Every student is bound to follow at least one private course in the faculty in which he is matriculated. On matriculation he has received a small memorandum book, in the first and second columns of which he inscribes the public and private courses he wishes to follow during the semester. He then presents his book to the questor, who adds, in the sixth and seventh columns, the terms of the private courses. The student then goes to the professor, who writes in the third, fourth, and fifth columns the name of the student, the day when he called on him, and the number of the order which he occupies in the list of his hearers.

The student himself has to write his name on this list. The student pays the price of the courses to the questor, and the latter turns over the total amount of the fees to the professor after having deducted 2 per cent. collection fees.

The professor fixes the price of each private course. It varies according to the number of hours a week, and also according to the facilities and the nature of the subject. The professors of medicine and of natural sciences; for example, demand high fees on the ground that they are obliged to make very expensive experiments.

The following is a sketch of the cost of these courses in the different faculties:

For the faculties of theology, the semestrial fees are 10 marks for a course of 2 hours, 15 marks for a course of 3 hours, 18 marks for a course of 4 and 5 hours, and 20 marks for a course of 6 hours.

In the faculty of law, a course of 2 hours costs 10 marks, a course of 3 hours 15 marks, a course of from 4 to 6 hours 20 marks, and a course of from 7 to 12 hours 40 marks.

In the faculty of philosophy the fees for theoretical courses are the same as in the faculties of theology. For courses accompanied with demonstrations and experiments, the price is about double; namely, 20 marks for 2 hours, 30 marks for 3 hours, 36 marks for 4 and 5 hours, and 40 marks for 6 hours. The special work in the laboratories requires 51 marks, and, in addition, 21 marks are charged for gas, glasses, &c., making in all 72 marks. To give some more examples, we add the tariff of some courses of the faculty: experimental physics, 25 marks; inorganic chemistry, 36 marks; organic chemistry, 25 marks; botany, 40 marks; zoölogy, 20 marks; mineralogy, 25 marks, &c.

In the faculty of medicine the course of anatomy in winter costs 39 marks, in summer 20 marks; the dissections in winter, 60 marks; the microscopic works in summer, 30 marks.

The fees for a course on operative medicine are 50 marks; 40 marks are the fees for the surgical clinic; 34 marks for medical and obstetrical clinic; 20 marks for ophthalmological clinic. For theoretical courses the fees are a little less; they amount to 34 marks for physiology, 25 marks for pathological anatomy, 20 marks for internal and external pathology, &c.

The institution of fees would result in excellent incomes for the professors if all the students were in a condition to pay them; but this expense is too great for a large number of them. Formerly the needy students asked the professor directly to relieve them from the payment, a custom which was very prejudicial and troublesome to the professor, for it was very painful to him to resist the numerous and frequently unjustifiable requests made.

This condition of affairs could only be remedied by the creation of what is called the "Stundung" (respite). It is a sort of delay in paying the fees granted to the student, who remains the debtor of the profes-

sor and bound to settle his account as soon as he is in a condition to reasonably do so. This is also done, in general, for the other expenses of the students. Many of them contract debts during their stay at the university, and only pay after a certain number of years, when they have a situation.

According to the regulations of December 31, 1847, and the special instruction for the University of Bonn of January 21, 1873, the "Stundung" is accorded under the following conditions:

The right of "Stundung" is granted by a commission composed of the rector, the judge, and the five deans. According to a ministerial decree of March 14, 1862, the request for "Stundung" has to be made during the first week of the semester under penalty of refusal. To obtain the Stundung the certificate of maturity and a certificate of indigence are necessary. The student who has obtained it receives a receipt signed by the rector, the judge, and the dean of the faculty. This receipt he presents to the questor when he registers for the courses he desires to follow. The sons of professors and employes of the University of Bonn may follow the private courses without paying fees. The Stundung is not obligatory upon the professors, but they are considered satisfied if they do not notify the questor to the contrary at the beginning of the semester. The list upon which the professors register their hearers according to section 133 of the university statutes must be submitted to the questor six weeks after the beginning of the semester. The questor indicates which students have paid and which have obtained the Stundung, and then returns the list, thus completed, to the professors and Privat-Dozenten. The questor keeps a book of debtors and creditors, an alphabetical list of all the debtors, and a journal of receipts and expenditures relative to the Stundung. The account of each debtor is regulated on his departure from the university; the leaving certificates, before being delivered to the student, are submitted to the questor, who indicates the amount of the Stundung, if there is any, which the student promises to pay six years after the completion of his university studies. It is the duty of the questor to collect these amounts. If the debts are paid without summons he gets 2 per cent. collection fees, but if legal steps have to be taken the questor obtains 20 per cent. The fees for legal prosecution are borne, one-fifth by the questor and four-fifths by the professors. The questor of Bonn, Councillor Kirchner, who has been pleased to furnish detailed information on this subject, assured me that in general the debts are paid with tolerable regularity; nevertheless it is very often necessary to call once upon the debtor. There are arrears from thirty to forty years old; the prompt collection of fees due to the professors depends naturally upon the questor. Herr Kirchner estimates at 13 per cent. the loss the professors suffer, independent of the 20 per cent. they allow the questor.

The amount of the Stundung is not equal in all the faculties. In the faculty of Catholic theology it sums up to about 1,500 marks each sem-

ester, i. e., 90 per cent. of the total amount of fees; in the faculty of Protestant theology, to 400 marks, or 10 per cent.; in the faculty of law, to 800 marks, or about 10 per cent.; in the faculty of medicine, to 4,000 marks, or 33 per cent.; in the faculty of philosophy, to 8,000 marks, or 35 per cent. The above figures enable us to estimate the number of poor students who follow the courses of the university as one-third of the whole.

The details upon which we have just entered furnish us the necessary elements to make an estimate of the annual amount of fees for each professor of the University of Bonn. With the knowledge of the exact number of students (which we shall give further on) registered for the different public and private courses, the semestrial rate of each course and the proportion reached by the Stundung in each faculty, we are enabled to make an approximate calculation of the fees, as follows :

Faculty of Protestant theology : Ordinary professors : Dr. Mangold, 938 marks; Dr. Kamphausen, 776 marks; Dr. Christlieb, 620 marks; Dr. Krafft, 518 marks; Dr. Bender, 338 marks, and Dr. Lange, 290 marks. Dr. Sieffert, extraordinary professor, receives about 160 marks; Dr. Beurath, Privat-Dozent, 226 marks; and his colleague, Dr. Budde, nothing.

Faculty of Catholic theology: Ordinary professors: Dr. Floss, 500 marks; Dr. Menzel, 10 marks; Dr. Reusch, 18 marks; Dr. Langen, nothing. Dr. Simar, extraordinary professor, receives 96 marks, and Dr. Kaulen, Privat-Dozent, 340 marks.

Faculty of law : Ordinary professors : Drs. Lörsch and Stintzing receive more than 4,000 marks; Dr. Sell, more than 3,000 marks; Drs. Endemann and Hülschner, a little less; for a single course, Dr. Schulte receives 830 marks, and Dr. Hüffer, 500 marks. The extraordinary professors, Drs. Schlossmann and Klostermann, receive 760 and 350 marks, respectively.

Faculty of medicine : Ordinary professors : Dr. Pflüger, 4,200 marks; Drs. Köster and Rühle, nearly 4,000 marks; Dr. Veit, 3,000 marks; Drs. Busch, Sämisch, La Valette Saint-George, from 2,500 to 2,000 marks; Dr. Binz, 800 marks, and Dr. Leydig, 1,000 marks. Extraordinary professors : Dr. Zuntz, 1,200 marks; Dr. Obernier, 750 marks; Dr. Doutrelepont, 220 marks; and Dr. Schaaffhausen, nothing. The Privat-Dozenten are Drs. Kocks, Madelung, Burger, and Mosengeil, who receive 600, 500, 320, and 100 marks; Drs. Dittmar, Wolffberg, and Walb receive no fees.

Faculty of philosophy: Ordinary professors: Dr. August Kekulé (rector in 1878), 9,000 marks; Doctors Hanstein and Clausius, nearly 5,000 marks; Doctors Rath and Bona Meyer, about 2,000 marks; Doctors Neuhäuser and Bücheler, 1,500 marks. The fees of Doctors Usener, Wilmanus, Förster, Lipschitz, and Held amount to about 1,000 marks; those of Doctors Maurenbrecher, Schäfer, Ritter, and Reinhardt Kekulé may be estimated at 500 marks; Doctors Troschel, Delius, Aufrecht, Nasse,

Knoodt, Menzel, receive about 300 marks, and Doctors Schönfeld, Justi, and Gildemeister, from 20 to 100 marks. Extraordinary professors: Doctor Wallach, about 2,200 marks; Doctor Bischoff, 850 marks; Doctors Mohr, Kortum, Birlinger, and Bernays from 700 to 500 marks; Doctor Ketteler, about 300 marks, and Doctors Schaarschmidt and Andresen more than 200 marks; Doctors Radicke, Andrae, and Prym receive nothing. Privat-Dozenten: Doctor Vöchting, 600 marks; Doctors Klein and Fischer, from 350 to 300 marks; Doctor Hertling, a little less; Doctor Witte, 80 marks; Doctor Bertkau, nothing.

These calculations apply to the winter semester of the present and the summer semester of the preceding year. It was not in our power to give absolutely correct figures, this being the only information which has been directly refused; but our estimates appear to be very near the reality. It will be observed that the professors of natural sciences in the faculty of philosophy receive the largest amount of fees; next come the faculty of law and the faculty of medicine, then the professors of philology in the faculty of philosophy, and then the professors of philosophy and of history; the faculty of Catholic theology comes last. The fees of one of the professors of this faculty would be very high if at the same time the Stundung were not so considerable. The fees of the professor of astronomy, of the professor of Oriental languages, and of fine arts are insignificant. It is especially noteworthy that the amount of the fees is less for all extraordinary professors and Privat-Dozenten, except in the faculty of Catholic theology on account of the exceptional circumstances prevailing there. Among the few extraordinary professors who form an exception to this rule, I have to cite Doctor Wallach, who, thanks to his capacity as first assistant in the chemical institute and to the disinterestedness of Doctor Kekulé (who turns over to him one of his principal courses) receives tolerably high fees.

A sentiment of discretion has hindered us from publishing here the amount of the salary of each professor. But we are able to state that the professors who receive the highest salaries receive also the largest amount of fees.

The maximum and average salaries which we have given show, for example, that the professors of the faculty of Catholic theology are the worst paid, both as regards the fees and the salaries. On the other hand, a professor like Dr. Kekulé, who receives about 9,000 marks in fees, receives the highest salary, with Dr. Bucheler, whose fees are also very high. The same observation applies to the other professors of natural sciences and of law and medicine. The latter have, besides, the advantage of an extended and lucrative practice.

The inequality which exists among the different professors is not without inconvenience from a social standpoint. It results in dividing the university people into a certain number of special circles, determined by the amount of their wealth.

What I have just said applies, perhaps, less to the University of Bonn

than to the other universities. A large number of the professors of Bonn are tolerably rich. Living expenses are very high at Bonn, and one cannot estimate below 15,000 francs the amount necessary to a professor to live decently with his family, which is often pretty numerous. Most of the professors whom I visited seemed to be in very good circumstances; many among them live in the finest quarters of the city, and possess handsome little houses in the Coblenzerstrasse, Poppelsdorfer Allee, and Meckenheimerstrasse. A certain number of professors—about twenty—all of whom belong to the liberal class, are in the habit of meeting one evening in every month alternately at the house of one of the members. Here the professor who receives gives a conference of about an hour on one of the subjects which he treats at the university. The meeting ends with a supper. I was told that it is not without difficulty that the professors manage to meet thus at a fixed time. This sort of meetings has been discontinued more than once, and had to be reorganized on a new basis. I was also informed of the periodical dinners (which occur twice in each semester) of the teaching corps of the university. Of course the younger element, the Privat-Dozenten, are the most prompt in attending these rendezvous.

Generally the professors live in great isolation. They are kept busy by their seminaries, their courses, and the books they write. In winter, however, there are several gatherings at which supper and dancing are in order. The professors form, moreover, a society by themselves. There are at Bonn a certain number of very wealthy families who do not mix with others in society. They are, to a great extent, foreign business men who have made their fortune, and who come to Bonn to live in the lovely villas on the borders of the Rhine. Another circle, equally circumscribed, is composed of government functionaries and army officers.

INSTRUCTION IN THE UNIVERSITY.

Before giving an account of the different courses and the students registered in them, I will say a few words on the outside organization of these courses.

The lectures of the German universities are reputed to last one hour, but they really last but three-quarters of an hour. The medical lectures are given early, at 7 o'clock in summer; the legal lectures never begin before 9 o'clock; the philosophical are given at all hours of the day. In the choice of hours and lecture rooms the ordinary professors have the preference before all others. Most of the courses are at present given in the rooms of the first and second floor, near the entrance from the yard; these rooms are ordinarily very plain; a few have, however, preserved the decorations of the time when the university building was the residence of the Electors of Cologne. The furniture consists of a chair, a table, and benches. Professor and students enter and withdraw through *the same door*. The professor enters last and leaves the room first. It

is considered unbecoming to enter after a professor has commenced his course.

The course begins only at the end of the first quarter, and closes exactly when the hour has expired, so that the students have time enough to go from one lecture room to another, or even from Poppelsdorf, where the courses of natural sciences are given, to the palace of the electors, where the clinics and the principal buildings of the university are located.

When the hour is completed, a bell informs the professor that it is time to stop reading. From this moment the students no longer listen; they close their copybooks, and a sensible professor submits to the interruption of his course, even in the middle of the development of an idea. The professors give their lectures in plain citizen dress.

The regularity in attendance on the part of the students appeared to me quite satisfactory, despite the continual complaints of the professors. In the faculty of law the students are the least regular, and yet one may estimate the number in attendance at least at one-half of the number on the register. This number will appear quite large if we take into consideration that the students are morally bound to register for certain courses which they do not intend to follow.

The regularity of the professors is quite remarkable. Although they are never put on the retired list and many of them are old and very feeble, it is nevertheless a rare case that there are any who excuse themselves from giving their courses.

The detestable institution of "*professeurs suppléants*" is absolutely unknown in Germany; and we must render this homage to the German university professors in general, that this custom would find but few disciples among them. I had continually the opportunity of observing how much the professors are preoccupied by their courses and with what care they provide against failure in their duties towards their hearers. An indisposition which prevents them from fulfilling these duties is to the professors a real cause of grief. It would be difficult to find professors in Germany who are not conscientious.

COURSES OF STUDY—WINTER SEMESTER, 1878-79.

SCHOLAE SECUNDUM ORDINES DESCRIPTAE.

I. ORDINIS THEOLOGORUM CATHOLICORUM.

1. *Professores ordinarii.*

Andreas Menzel Dr.—Privatissime et gratis: I. Repetitorium dogmaticum instituet semel p. h. h. IX, 2.¹ Privatim: II. Theologiae moralis p. II tradet quater p. h. h. IX, 0.

Henricus Josephus Floss Dr.—Publice: I. Historiam ecclesiasticam aevi recentissimi inde ab anno 1546 usque ad praesens tempus bis p. h. enarrabit, 81. Privatim: II. Archæologiam ecclesiasticam docebit bis p. h. h. XII, 76; III. Historiae ecclesiasticae

¹The figures at the end of each course indicate the number of students registered for the same.

p. III enarrabit quinques p. h. h. XI, 61; IV. Theologiae moralis p. I tradet quater p. h. h. VIII, 47; V. Artem homileticam explicabit bis p. h. h. VIII, 21; VI. Theologiae pastoralis p. I tractabit ter p. h. h. XII, 45. Privatissime et gratis: VII. Exercitationes homileticas moderari perget bis p. h. h. VII, 38; Exercitationes catecheticas bis p. h. h. moderabitur, 24.

Franciscus Henricus Reusch Dr.—Publice: I. Patrologiam docebit bis terve p. h. h. XI, 3. Privatum: II. Vaticinia Messiana interpretabitur quater p. h. h. X, 3.

Josephus Langen Dr.—Publice: I. S. Jacobi epistolam interpretabitur semel p. h. h. XII, 0. Privatum: II. S. Pauli ad Romanos epistolam interpretabitur ter p. h. h. XI, 2; III. Historiae ecclesiasticae p. IV enarrabit quinques p. h. h. XII, 2.

2. *Professor extraordinarius.*

Hubertus Theophilus Simar Dr.—Publice: Doctrinam dogmaticam de sacramentis tradet bis p. h. h. X, 70. Privatum: II. Theologiae dogmaticae p. I docebit sexies p. h. h. IX, 45.

3. *Privatim docens.*

Franciscus Kaulen Dr.—Privatum: I. Evangelium sec. Mathaeum interpretabitur quater p. h. h. IV, 65. Gratis: II. Librum Judith exponet bis p. h. h. V, 50.

II. ORDINIS THEOLOGORUM EVANGELICORUM.

1. *Professores ordinarii.*

Joannes Petrus Lange Dr.—Publice: I. Hermeneuticen biblicam tractabit bis dieb. Ven. et Sat. h. IX, 0. Privatum: II. Ethicen christianam docebit quater dieb. Lun. Mart. Merc. Jov. h. IX.

Guilelmus Ludovicus Krafft Dr.—Publice: I. Historiam ecclesiae Romanae Catholicae a concilii Tridentini temporibus usque ad concilium Vaticanum tradet bis p. h. d. Sat. h. VIII et IX, 18. Privatum: Historiam ecclesiae usque ad Gregorii VII enarrabit quinques p. h. h. XI, 20.

Guilelmus Julius Mangold Dr.—Publice: I. Epistolam alteram ad Corinthios datam interpretabitur semel p. h. h. X, 17. Privatum: II. Epistolam priorem ad Corinthios datam quater p. h. schol. h. X explicabit, 10; III. Historiam dogmatum enarrabit quater schol. p. h. h. IV, 12.

Adolphus Herm. Henr. Kamphausen Dr.—Publice: I. Seminarii regii theologiici sodalibus nonnulla Veteris Testamenti capita proponet, 27. Privatum: Jesaiae librum explicabit dieb. Lun. Mart. Jov. Ven. h. VIII, 5; III. Introductionem in Vetus Testamentum tradet quinques p. h. h. XII, 8.

Theodorus Christlieb Dr. theol. et phil.—Privatissime et gratis: I. Historiam evangelii a protestantibus inter paganos propagati delineabit bis h. p. I, 20. Privatum: II. Artem homileticam ternis scholis tradet dieb. Lun. Merc. Ven. h. XI, 18; III. Theologiam pastorem docebit ter dieb. Mart. Jov. Sat. h. XI, 18; Praeterea IV in Seminario regio exercitationes tam homileticas quam catecheticas moderari perget, 14.

Guilelmus Bender Dr. theol. et phil.—Publice: Exercitationes sodalium seminarii regii dogmatico-historicas moderabitur h. s. 26. Privatum: II. Theologiam dogmaticam docebit quinques h. IX, 9. Privatissime et gratis: III. Exercitationes ad theologiam systematicam spectantes instituet h. p. d. 7.

2. *Professor extraordinarius.*

Fridericus Antonius Aemilius Sieffert Lic. theol. Dr. phil.—Publice: I. Historiam recentioris artis criticae N. T. enarrabit bis d. Sat. h. X et XI, 7. Privatum: II. Trias priora evangelia quinques interpretabitur h. X, 0.

3. *Privatim docentes.*

Carolus Budde Lic. theol.—Privatissime et gratis: Exercitationes Hebraicas instituet bis p. h. h. p. st. 4. Privatim: II. Librum psalms interpretabitur quater p. h. h. VIII, 7.

Carolus Beurath Lic. theol. Dr. phil.—Privatissime et gratis: I. De fontibus historiae ecclesiasticae medii aevi disseret semel d. Merc. h. XI, 2. Privatim: II. Historiae ecclesiasticae p. II enarrabit quater p. h. h. XI, 3.

III. ORDINIS JURECONSULTORUM.

1. *Professores ordinarii.*

Ferdinandus Walter Dr.—Senectute excusatus scholas non habebit.

Carolus Sell Dr.—Publice: Gaii commentariorum librum primum, Justiniani institutionibus comparatis, interpretabitur bis p. h. dieb. Merc. et Sat. h. XII, 69. Privatim: II. Pandectarum partes priores i. e. generalem et eas quibus de rerum dominio et de iuribus in re aliena nec non de iure obligationum agitur e conspectu suo (ed. IV. ap. Marc. 1867) decies p. h. h. XI et XII docebit, 30; III. Processum civilem Germanicum explicabit quinquies p. h. h. IV, 56.

Josephus Bauerband Dr.—Adversa valetudine impeditus a praelectionibus vacabit.

Hugo Haelschner Dr.—Privatim: I. Jus criminale Germanicum quinquies p. h. h. IX docebit, 56; II. Jus naturae sive philosophiam iuris quinquies p. h. h. X tradet, 52; III. Processum criminalem quater p. h. h. XII exponet, 43.

Rodericus De Stintzing Dr.—Privatim: Pandectarum partem II (jus familiarum et hereditatum) docebit quater p. h. h. III, 43; II. Institutiones et historiam iuris Romani privati tradet quater p. h. h. XI et XII, 57.

Fridericus Eques De Schulte Dr.—Publice: I. Historiam processus et iudiciorum Germaniae enarrabit d. Sat. h. X, 53. Privatim: II. Historiam iuris Germanici quinquies h. X tradet, 30.

Guilelmus Endemann Dr.—Publice: I. Jus cambiale tradet bis hora XI, 55. Privatim: II. Jus mercaturae quater h. XI exponet, 35; III. Jus publicum Germaniae quinquies h. XII docebit, 16. Privatissime et gratis: In seminario iuridico exercitationes processus civilis iurisque mercatorii moderabitur d. Mart. h. VI–VIII.

Hermanus Hueffer Dr.—Publice: I. Jus matrimoniorum bis p. h. h. II exponet, 43; II. Jus ecclesiasticum catholicorum et evangelicorum quater p. h. h. — docebit, 23.

Hugo Loersch Dr.—Privatissime et gratis: I. In seminario regio iuridico iuris Germanici exercitationes moderabitur d. Jov. h. VI et VII, 10. Privatim: Jus Franco-gallicum civile quod in terris Rhenanis viget tradet quater h. IX, 28; III. Jus privatum Germanicum cum iure feudali quinquies docebit h. X, 47.

2. *Professores extraordinarii.*

Alfredus Nicolouius Dr.—Commeatu impetrato scholas non habebit.

Rudolfus Klostermann Dr.—Publice: I. De concursu creditorum disseret semel h. IX, 45. Privatim: II. Processum civilem Germanicum docebit quinquies p. h. h. VIII, 5.

Sigmundus Schlossmann Dr.—Publice: I. Historiam processus civilis Romanorum tradet bis h. p. d. 72. Privatim: II. Pandectarum partes priores et eas quibus de rerum dominio et de iuribus in re aliena nec non de obligationibus tractatur quinquies p. h. h. XI et XII docebit, 6.

IV. ORDINIS MEDICORUM.

1. *Professores ordinarii.*

Gustavus Veit Dr.—Publice: I. Gynaecologiae partem tradet d. Jov. h. V, 29. Privatim: II. Artem obstetriciam senis diebus h. VIII docebit, 22; III. Exercitationes practicas in clinico gynaecologico quotidie h. XII moderari perget, 34.

Guilelmus Busch Dr.—Publice: I. De vulneribus sclopetariis disseret d. Merc. h. VI, 50. Privatum: II. Clinicum chirurgicum moderari perget quotidie h. IX–XI, 46; III. Chirurgiam tradet ter p. h. h. p. st., 3.

Franciscus De Leydig Dr.—Publice: I. Organorum sensuum structuram penitiorum exponet semel d. Mart. h. IV, 33. Privatum: II. Anatomiae comparatae partem secundam docebit dieb. Lun. Merc. Jov. h. IV, 36. Privatissime et gratis: III. Anatomiae et histologiae studia singulorum moderabitur quotidie h. p. st., 0.

Edwardus Pflueger Dr.—Publice: I. Seminarium physiologicum quotidie moderabitur, 0. Privatum: Physiologiae partem secundam hor. IX dieb. Lun. Mart. Merc. Jov. Ven. docebit, 33.

Hugo Ruehle Dr.—Publice: De morbis nervorum disseret semel d. Ven. h. XII, 37. Privatum: II. Pathologiam et therapiam specialem tradet quinquies h. XII, 20; Exercitationes clinicas et policlinicas medicas moderari perget quotidie XI–XII, 41.

Carolus Koester Dr.—Privatissime et gratis: I. Laboratorium pathologicum moderabitur quotidie, 30. Privatum: Anatomiam et physiologiam pathologicam quinquies h. V. docebit, 23; III. Cursum demonstrativum anatomiae pathologicae cum exercitationibus rite obducendi cadavera ter h. II–IV instituet, 29.

Theodorus Saemisch Dr.—Publice: I. De infantum oculi morbis disseret d. Jov. h. VI, 30. Privatum: II. Clinicum ophthalmiatricum moderari perget dieb. Lun. Mart. Ven. h. VIII, 31; III. Cursum ophthalmoscopicum instituet d. Merc. III et IV, 34; IV. Cursum operationum in oculo instituendarum habebit d. Ven. h. II, 24.

Carolus Binz Dr.—Privatissime et gratis: Laboratorium pharmacologicum quotidie h. p. st. moderari perget, 4. Privatum: II. Pharmacologiae partem I tradet diebus Lun. Mart. Jov. Ven. h. IV, 22; III. Toxicologiam experimentalem exponet semel d. Merc. h. IV, 19.

Adolphus liber baro de La Valette Saint-George phil. et med. Dr.—Publice: I. Seminarium anatomicum moderabitur quotidie, 7. Privatum: II. Anatomiam specialem docebit sexies h. XI, 65; III. Exercitationes anatomicas una cum Zuntzio P. E. prosectorum moderabitur quotidie h. VIII–IV, 66.

2. Professores extraordinarii.

Hermannus Schaaffhausen Dr.—Publice: I. Anthropologiam bis p. h. h. IV docebit, 55. Privatum: II. Encyclopaediam et historiam artis medicae ter p. h. h. III explicabit, 6.

Josephus Doutrelepont Dr.—Publice: I. De morbis syphiliticis agit cum demonstrationibus clinicis de Sat. h. III, 36; II. De morbis cutaneis agit cum demonstrationibus d. Merc. h. IV, 33. Privatum: II. Doctrinam de fasciis chirurgicis cum exercitationibus practicis dieb. Mart. Jov. Sat. h. II exhibebit, 23.

Franciscus Obernier Dr.—Publice: I. Laryngoscopiam tradet semel p. h. 20. Privatum: II. Propaedeuticam clinicam una cum exercitationibus practicis tractabit quinquies p. h. h. III. 22. Privatissime et gratis: III. Morbos infantum demonstrabit semel p. h. h. III, 7.

Nathan Zuntz Dr.—Publice: I. De situ viscerum disseret semel d. Ven. h. IV, 52. Privatum: II. Exercitationes anatomicas una cum de La Valette Saint-George P. O. moderabitur quotidie h. VIII–IV, 66.

Carolus A. Mosengeil Dr.—Publice: I. De fracturis et luxationibus disseret semel p. h. 4. Privatum: II. Chirurgiam specialem sive topographiam tradet ter p. h. h. VIII, 0. Privatissime et gratis: III. De progressibus chirurgiae semel p. h. disseret.

3. Privatum decentes.

Otto Guilelmus Madelung Dr.—Gratis: Orthopaediam tradet diebus Mart. et Ven. h. VI.

Carolus Dittmar Dr.—Gratis: Psychiatricen forensem in medicorum et iuridicorum usum docebit et demonstrabit in nosocomio municipali semel p. h. d. Sat. h. IV–VI, 26.

Josephus Kocks Dr.—Gratis: Dislocationes flexionesque uteri semel tradet, 9.

Henricus Walb Dr.—Gratis: Lentis morbos explicabit semel p. h. h. p. st. 1.

Carolus Burger Dr.—Gratis: I. Policlinicum infantum moderabitur bis h. II dieb. Lun. et Jov. 15. Privatum: II. Cursum laryngoscopium habebit bis p. h. h. p. I. 18.

Sigfridus Wolffberg Dr.—Gratis: I. Disquisitiones chemicas et microscopicas ad diagnosin clinicam necessarias moderabitur semel, 14; II. Hygienae publicae elementa tradet semel, 23. Privatissime et gratis: III. Disquisitiones chemicas aquarum bibendarum instituet, 4.

Mauricius Nussbaum Dr.—Gratis: I. Morphologiam et histologiam urogenitalis systematis exponet semel d. Lun. h. III, 52. Privatum: II. Anatomiam quam dicunt topographicam docebit bis h. p. I, 22.

Fridericus Fuchs Dr.—Privatissime et gratis: Physicae medicinalis capita selecta tradet bis, 7.

V. ORDINIS PHILOSOPHORUM.

1. Professores ordinarii.

C. Bergmann Dr. scholas non habere perget.

Joannes Gildemeister Dr.—Publice: I. Linguae Arabicae elementa docebit duce grammaticae Casparianae editione quarta ab A. Muellero a 1876 curata ter p. h. h. II, 3. Privatum: II. Linguae Persicae recentioris institutiones tradet bis p. h. h. XI, 3. Privatissime et gratis: III. Lectiones Syriacas continuabit bis h. II, 1; IV. Scriptores Arabicos proponet bis p. h. h. III, 3; V. Linguam Aethiopicam docebit bis p. h. h. XI, 1.

Petrus Knoodt Dr.—Publice: I. Philosophiam Graecam antiquam tradet bis p. h. h. IV, 7. Privatum: II. Metaphysicam quinques p. h. h. III docebit, 2.

F. H. Troschel Dr.—Publice: I. Echinodermatum historiam naturalem tradet d. Jov. h. IX, 8. Privatum: II. Zoologiae specialis partem secundam (Vertebrata) docebit dieb. Lun. Mart. Jov. Ven. h. VIII, 19; III. Exercitationes zoologicas sem. regii physici moderari perget d. Ven. h. IX, 32.

Ervinus Nasse Dr.—Publice: I. De civitatis Britannicae forma agit p. h. h. IV, 12. Privatum: II. Politicam docebit quater p. h. h. IV.

Rudolphus Clausius Dr.—Publice: I. Exercitationes physicas in seminario regio physico moderari perget semel h. 32. Privatum: Physices experimentalis partem dimidiam, acusticam, opticeam, magnetismum et electricitatem, tradet quater p. h. dieb. Merc. et Sat. h. IX et X, 111; III. Elasticitatis theoriam docebit bis p. h. h. d. Lun. h. VIII et IX, 32.

Arnoldus Schaefer Dr.—Publice: I. Seminarii historici exercitationes moderabitur h. p. I, 29. Privatum: II. Historiam antiquam usque ad finem imperii Romanorum occidentalis enarrabit dieb. Lun. Ven. h. IX, 43.

Franciscus Buecheler Dr.—Publice: I. In seminario philologorum sodales ordinarios hymnis Homericis tractandis exercebit bis p. h. 42. Privatum: II. Horati odas enarrabit quater h. XI, 73. Privatissime et gratis: III. Osea et Umbria monumenta interpretanda proponet bis horis vespertinis, 9.

Hermannus Usener Dr.—Publice: I. Seminarii philologici sodalibus ordinariis Ciceronis libros philosophos tractandos proponet bis p. h. h. V, 42. Privatum: II. Litterarum Graecarum historiam enarrabit quinques h. XII, 62.

Rudolphus Lipschitz Dr.—Publice: I. Seminarii mathematici sodalium exercitationes moderabitur bis p. h. h. XI, 41. Privatum: II. Theoriam virium quae agunt secundum legem Newtonianam exponet quater p. h. h. IV, 23; III. Elementa calculi differentialis et integralis docebit quater p. h. h. V, 36.

Joannes Hanstein Dr.—Publice: I. Methodum rerum et naturalium et arte factarum (praecipue venalium) particulas microscopo dignoscendi tractabit semel h. p. I, 34. Privatum: II. Botanice specialem et systematicam docebit et demonstrationibus illustrabit dieb. Lun. Mart. Jov. Ven. h. IX et dieb. Lun. et Jov. h. X, 34.

III. Exercitationes microscopas moderabitur dieb. Merc. et Sat. h. VIII—I vel h. p. I.
4. Praeterea: IV. Exercitationes seminarii physici botanicas moderari perget d. Merc.
h. III, 32,

Nicolaus Delius Dr.—Publice: I. Shaksperii drama “Winter’s Tale” interpretabitur
bis p. h. h. III, 32. Privatum: II. Historiam literarum Francogallicarum enarrabit
quinquies p. h. h. XII, 16.

Augustus Kekulé Dr.—Publice: I. Selecta chemiae organicae capita tractabit
semel d. Merc. h. V, 76. Privatum: II. Chemiae experimentalis p. I i. e. chemiam
anorganicam tradet quinquies h. XII, 114; III. Exercitationes practicas in laborato-
rio chemico moderabitur una cum Wallach P. E. quotidie ab h. IX ad h. V, 75. Prae-
terea: IV. Seminarii physici exercitationes chemicas moderari perget h. p. I, 0.

Ivergen Bona Meyer Dr.—Publice: I. Philosophiam nostrae aetatis ejusque per
litteras elegantiores vestigia explicabit bis dieb. Merc. et Sat. h. V, 42; II. Societa-
tem philosophicam Kantii explicandi causa instituet semel d. Merc. h. VI, 20. Pri-
vatum: III. Historiam philosophiae recentioris inde a Kantio tradet quater dieb. Mart.
Merc. Jov. Ven. h. IV, 46.

Guillelmus Maurenbrecher Dr.—Publice: I. Exercitationes seminarii historici perget
d. Merc. h. V–VII, 29; II. De scriptoribus qui rerum ab a. 1763 usque ad a. 1815 ges-
tarum historiam tradiderunt semel p. h. disseret, 28. Privatum: III. Historiam seculi
xix enarrabit quater dieb. Lun. Mart. Jov. Ven. h. V, 59.

Carolus Justi Dr.—Publice: I. Vasari vitas pictorum explicabit semel h. V, 2. Pri-
vatum: II. Historiam artis medii et recentioris aevi enarrabit quater h. XII, 4; III.
Historiam aesthetices tradet bis h. p. I, 0.

Josephus Neuhaeuser Dr.—Publice: I. Cognoscendi doctrinam in veterum philo-
sophia exponet bis p. h. h. XII, 16. Privatum: II. Logicem docebit quater h. VIII, 49.
Privatissime et gratis: III. Exercitationes philosophicas moderabitur semel h. XII, 4.

Gerardus vom Rath Dr.—Publice: I. Crystallographiae et mineralogiae physicae
elementa docebit ter d. Ven. h. X, d. Sat. h. XI–I, 29. Privatum: II. Mineralogiam tradet
quinquies dieb. Lun. Mart. Merc. Jov. Ven. h. XI, 20. Praeterea: III. Exercitationes
mineralogicas seminarii physici moderari perget d. Jov. h. III, 32.

Adolphus Held Dr.—Publice: I. Exercitationes economico-politicas semel h. p. I
instituet, 12. Privatum: II. Oeconomiam publicam quinquies h. V. tractabit, 41.

Renardus Kekulé Dr.—Publice: I. Exercitationes archaeologicas moderari perget
semel p. h. h. X, 8. Privatum: II. Historiam artis antiquae enarrabit quater p. h. h. X, 14.

Carolus Menzel Dr.—Publice: I. Exercitationes seminarii regii historici moderari
perget semel d. Merc. h. IX, 29; II. De fontibus historiae medii aevi disseret semel d.
Lun. h. III, 11. Privatum: III. Palaeographiam Latinam medii aevi ter diebus Mart.
Jov. Ven. h. III docebit, 16.

Mauricius Ritter Dr.—Publice: I. Exercitationes seminarii regii historici moder-
abitur semel d. Mart. h. VI, 29. Privatum: II. Historiam Europae inde ab anno 1555
usque ad annum 1660 enarrabit quater dieb. Lun. Mart. Jov. Ven. h. XII, 15.

Guillelmus Wilmanns Dr.—Publice: I. De Goethii dramatibus disseret semel h. p.
I, 59. Privatum: II. Grammaticam linguae veteris Theodiscae (Goth. Ahd. Mhd.) docebit
quater dieb. Lun. Mart. Jov. Ven. h. IX, 23; III. Monumenta linguae veteris Theodiscae
(Ahd.) et ipse interpretabitur et interpretanda proponet ter dieb. Lun. Mart. Jov. h.
X, 21.

Theodorus Aufrecht Dr.—Publice: I. Evangeliarum Harmoniam Heliand appel-
latam interpretabitur bis p. h. h. VIII, 8; II. Cursum Sanscriticum continuabit bis p.
h. h. VIII, 1. Privatum: III. Rigvedae hymnos selectos interpretabitur ter p. h. h. IX,
0; IV. Grammaticam Sanscriticam docebit ter p. h. h. IX, 0.

Eduardus Schoenfeld Dr.—Publice: I. De calculo interpolario et de aequationibus
numericis aget d. Sat. h. XII, 17; II. Colloquia de quaestionibus astronomicis instituet
bis p. h. h. p. I, 2. Privatum: III. Elementa astronomiae, imprimis sphaericae et prac-
ticae, docebit dieb. Lun. Mart. Jov. h. XI, 5. Privatissime et gratis: IV. Exercta-
tiones astronomicas practicas moderabitur horis commodis, 0.

Wendelinus Foerster Dr.—Publice: I. Exercitationes provinciales moderabitur bis h. V, 35. Privatum: II. Ernoutlandum Francogallicum interpretabitur ter h. IV, 33; III. Molierii vitam et opera enarrabit bis h. V, 31.

Ferdinandus liber baro A. Richthofen Dr. dato commeatu aberit.

2. Professores extraordinarii.

Gustavus Radicke Dr.—Publice: I. Meteorologiam bis p. h. h. IV docebit, 9. Privatum: II. Geometriam analyticam formarum in plano sitarum quater p. h. h. XI tradet.

Carolus Schaarschmidt Dr.—Publice: I. Ethices principia exponet et dijudicabit semel p. h. p. I, 11. Privatum: II. Psychologiam docebit ter p. h. h. I, 18.

Jacobus Bernays Dr.—Publice: I. Doctrinas philosophorum Graecorum qui ante Platonem floruerunt exponet selectaque eorum fragmenta interpretabitur d. Merc. h. IV, 33. Privatum: II. In Platonis dialogos introducet Georgiamque dialogum enarrabit dieb. Lun. Mart. Jov. Ven. h. IV, 17.

Fridericus Mohr Dr.—Publice: I. Geologiam semel d. Lun. h. VI docebit, 46. Privatum: II. Toxicologiam semel d. Ven. h. IX tractabit, 30.

Hermannus Kartum Dr.—Publice: I. Exercitationes seminarii mathematici moderabitur bis p. h. d. Merc. h. IV et V, 41. Privatum: II. Calculi integralis capita selecta docebit quater p. h. d. Mart. Jov. h. IX et X, 12.

Guilelmus Bischoff Dr.—Publice: I. Linguae Anglicae rudimenta docebit Mer. et Ven. h. VIII, 48; II. Societatis Anglicae et Francogallicae exercitationes moderabitur dieb. Lun. Mart. Jov. h. IX, 33. Privatum: III. Linguae Anglicae grammaticam tradet dieb. Lun. Mart. Jov. h. VIII, 26; IV. Linguae Anglicae rudimenta continuabit dieb. Lun. Merc. Ven. h. X, 6.

Antonius Birlinger Dr.—Publice: I. De Schilleri "Wallenstein" disseret semel h. p. I, 50. Privatum: II. Carmen Nibelungarum interpretabitur ter h. XI, 5; III. Grammaticam Anglo-Saxonicae linguae docebit et carmen "Beowulf" interpretabitur ter h. XI, 3.

Carolus Justus Andrae Dr.—Publice: I. De flora palaeozoica disseret semel h. X, 3. Privatum: II. Paleontologiam generalem docebit et demonstrationibus illustrabit ter III, 7.

Eduardus Ketteler Dr.—Publice: I. Physices experimentalis themata selecta semel h. p. I tractabit, 13. Privatum: II. Introductionem in physicen theoreticam ter h. p. I tradet, 0; III. Exercitationes practicas in laboratorio-physico octies dieb. Lun. Mart. Jov. Ven. h. II-IV instituet, 6.

Clemens Schlueter Dr.—Publice: I. Echinodermatum paleontologiam exponet semel h. IX, 0. Privatum: II. Geologiae p. II. de formationibus agentem explicabit ter quaterve h. IX.

Carolus Gustavus Andresen Dr.—Publice: I. In nominum gentiliciorum quae nunc in usu sunt apud Germanos studium introducet semel p. h. 15. Privatum: II. Syntaxim Germanicam quater p. h. docebit h. p. I, 2.

Eugenius Prym Dr.—Publice: I. Linguae Syriacae tradet bis p. h. h. IV, 0. Privatum: II. De lingua Arabica hodierna disseret ter p. h. h. IV, 1.

Martinus Philippson Dr.—Publice: I. Historiam bellorum a Crucesignatis gestorum enarrabit semel h. p. I, 39. Privatum: II. Historiam Francogalliae docebit quater dieb. Lun. Mart. Jov. Ven. h. X, 5.

Otto Wallach Dr.—Publice: I. De corporibus organicis ac ammoniaco derivatis disseret semel h. p. I, 30. Privatum: II. Chemiae analyticae partem qualitativam docebit ter h. XI, 37; III. Exercitationes practicas in laboratorio chemico moderabitur una cum Aug. Kekulé P. O. quotidie ab h. IX ad h. V, 75.

Hermannus Voechting Dr.—Publice: I. Repetitorium botanicum semel p. h. habebit, 19. Privatum: II. Pharmacognosiam bis p. h. h. p. I tradet, 23.

3. *Privatim docentes.*

Josephus Klein Dr.—Gratis: I. Juvenalis satiras selectas explicabit semel p. h. d. Sat. h. X, 27. Privatim: II. Palaeographiam Graecam exercitationibus docebit quater p. h. h. III, 16.

Georgius liber baro de Hertling Dr.—Gratis: I. Exercitationes philosophicas moderari perget bis p. h. h. p. I, 54; II. De juris principiis ab ethica repetendis disseret semel bisve p. h. h. p. I, 6.

Joannes Henricus Witte Dr.—Gratis: I. De consequentiis quas dicunt philosophici Darwinismi disseret semel p. h. d. Lun. h. VI, 19. Privatim: II. Platonis et Aristotelis philosophiam adumbrabit bis dieb. Merc. et Sat. h. IX, 7. Privatissime: III. Selectae diversis philosophiae disciplinis capita tractabit adjunctis exercitationibus bis h. p. I, 2.

Philippus Bertkan Dr.—Gratis: I. Theoriam quae dicitur descendendae tradet semel p. h. d. Sat. h. XII.

Theobaldus Fisher Dr.—Gratis: I. Historiam Americae repertae et exploratae enarrabit semel h. p. I, 21. Privatim: II. Geographiam Americae et Australiae tractabit bis h. p. I, 6.

Hugo Seeliger Dr.—Gratis: Determinationem locorum geographicam docebit dieb. Mart. et Jov. h. XII, 4.

Leo.—Aristophanes, 7.

Lipps.—Bacon et Kant, 18.

VI. ARTES.

Albertus Kueppers delineandi magister academicus.—Publice: I. Doctrinam de proportionibus in corpore humano tradere perget semel p. h. st. 10. Privatim: II. Artem delineandi atque fingendi ad naturam et opera antiqua bis p. h. docebit, 5.

Otto Arndt organicus.—Privatissime: Scholas organo canendi habebit quotidie horis commodis (adjunctis demonstrationibus de organi structura et usu), 17.

Frid. Guil. Ehrich battuendi magister academicus docebit tractare arma.

UNIVERSITY LIBRARY AND LESEVEREIN.

The budget of the library for 1878-'79 was 37,241 marks. The library contains at present from 250,000 to 300,000 volumes, among which are 850 manuscripts. Of the latter number only 200 are of real value. To this number must be added 118 manuscripts relating to the Orient, which were chiefly derived from the libraries of Schlegel and Lassen. Professor Gildemeister has prepared an excellent catalogue of this collection.

Chapter III gives an account of the Leseverein (reading society), composed of professors and students. The annual fees amount to 5 thalers, for which the leading foreign and domestic journals and reviews are furnished.

BUDGET OF THE UNIVERSITY.

A plan of the university budget is drawn by the curator with the advice of the rector, the deans, the senate, and the directors of institutes.

In the budget for 1878-'79 the state grant for all Prussian universities shows an increase over the preceding year of 86,428 marks. The figures, at least for some universities, represent but a part of the expenditure, since several of them derive considerable revenues from

ancient endowments and funds. Of course, the young universities, like Berlin and Bonn, do not possess any of these revenues.

The following table shows, according to the Prussian budget, the receipts and expenditures of the several universities of the Kingdom:

Universities.	Receipts.				Expenditure.	
	State grants.	Endowments and special funds.	Interest from capital and revenues from lands and buildings.	University revenues proper.	Academic administration.	Professors' salaries.
	Marks.	Marks.	Marks.	Marks.	Marks.	Marks.
Königsberg	668, 621	120. 00	17, 566. 91	43, 891. 09	24, 873. 50	282, 009. 00
Berlin	1, 334, 696	150. 00	840. 00	117, 887. 00	55, 198. 00	549, 300. 00
Greifswald	135, 684	169. 68	327, 915. 29	70, 821. 03	20, 275. 00	217, 500. 00
Breslau	620, 300	.....	37, 938. 35	9, 067. 65	24, 852. 00	309, 630. 00
Halle	386, 817	262, 120. 44	1, 418. 25	50, 894. 31	41, 513. 00	288, 889. 50
Kiel	478, 778	1, 152. 00	21, 795. 00	135, 614. 00	20, 435. 34	214, 140. 00
Göttingen	268, 620	590, 471. 00	17, 090. 70	33, 058. 30	37, 502. 50	386, 460. 00
Marburg	430, 376	2, 097. 41	48, 449. 91	17, 239. 68	22, 597. 09	221, 194. 00
Bonn	712, 594	4, 883. 00	12, 091. 90	93, 342. 10	33, 531. 60	360, 660. 00
Münster (academy)	102, 439	65, 962. 00	39. 00	4, 121. 00	4, 530. 00	98, 550. 00
Braunsberg (lyceum)	16, 287	19, 803. 00	1, 169. 00	171. 00	366. 00	30, 853. 00

Universities.	Expenditure.				
	Institutes and collections.	Various grants and subsidies.	Repairs, &c.	Various fees.	Indemnity for house rent paid to professors and other employees.
	Marks.	Marks.	Marks.	Marks.	Marks.
Königsberg	316, 531. 30	31, 312. 54	18, 793. 30	15, 379. 36	42, 300
Berlin	693, 010. 48	1, 050. 00	12, 196. 25	31, 868. 27	110, 940
Greifswald	239, 250. 13	16, 443. 00	.....	16, 569. 87	24, 552
Breslau	228, 202. 05	17, 591. 50	32, 670. 00	19, 908. 45	34, 452
Halle	266, 685. 68	25, 197. 75	26, 711. 00	12, 400. 87	39, 852
Kiel	324, 763. 00	1, 737. 00	17, 750. 00	24, 281. 66	34, 212
Göttingen	335, 668. 00	39, 710. 12	21, 192. 00	38, 307. 38	50, 400
Marburg	173, 396. 18	18, 091. 59	24, 865. 00	11, 751. 14	26, 268
Bonn	332, 601. 25	10, 368. 00	19, 813. 45	17, 036. 70	45, 900
Münster (academy)	46, 752. 00	2, 700. 00	.....	4, 048. 00	15, 984
Braunsberg (lyceum)	2, 223. 00	150. 00	242. 00	1, 674. 00	1, 920

The foregoing table only contains the ordinary expenses. But it is worthy of mention that the budget of the extraordinary expenses of all universities is very large. In 1878-'79 they amount to 893,700 marks for Berlin, to 101,000 marks for Breslau, to 635,400 marks for Halle,

to 173,230 marks for Kiel, to 2,580 marks for Göttingen, to 61,800 marks for Greifswald, and to 302,734 marks for Bonn.

The budgets of the institutes of the various universities are as follows. in marks: Königsberg, 316,531.30; Greifswald, 239,250.13; Breslau, 228,202.05; Halle, 266,685.88; Kiel, 324,783; Göttingen, 335,668; Marburg, 173,396.18; Münster, 46,752; Braunsberg, 2,223; Berlin, 693,010.48; Bonn, 332,601.25.

The budget of the lying-in clinic amounts to 54,720 marks.

ACADEMIC PRIZES AND STIPENDS.

According to the general statutes, each of the five faculties of the University of Bonn must announce every year certain subjects to be worked out by the candidates for prizes. The faculty of philosophy disposes of two prizes: one for the philological and historical section and the other for the section of mathematics and natural sciences. The professor of the specialty selects the subject. The other faculties dispose of one prize each. The amount of 900 marks is inscribed in the budget for these six prizes. On the 3d of August of each year the subjects are announced for the following year. The work must be written in Latin and submitted on the 3d of May at the latest.

Stipends are granted to needy students whose talents, zeal, and conduct are good, and who can furnish a certificate of indigence. In 1878 the amount thus divided among poor students was 33,696 marks.

THE WIDOWS' AND ORPHANS' FUND.

The widows of the professors of the University of Bonn do not receive any pension from the State. There is for this purpose a special institution which deserves mention on account of its originality. It is the widows' and orphans' fund, maintained by an annual assessment on the university professors and administered by a committee elected by them. The state only exercises a general supervision over this society without interfering with its transactions.

King Frederick William announced the creation of this fund in the foundation document of the university. Its statutes were approved by the King and by Minister von Altenstein March 28, 1822.

The ordinary professors, the extraordinary professors who receive a salary, the librarian and the prosecutor (if they have the rank of extraordinary professor) are obliged to join the society. The professors of the faculty of Catholic theology are exempted on account of their vows of celibacy. Other professors, single or married, are compelled to join. The judge, the questor, and the secretary of the university may enter the association three months after their installation.

Each member pays 150 thalers on entering and an annual fee of 33½ thalers. Each member of the association who marries for the second time after he is over 40 years of age has to pay a larger annual fee, which is fixed according to his age and the age of his second wife.

The King granted the society a capital of 10,000 thalers bearing interest at the rate of 5 per cent. annually.

When a married member dies his widow receives 240 thalers a year. This pension ceases when the widow marries again or if she should be sentenced by a court to six months' imprisonment or a fine of 300 thalers.

The legitimate children of the deceased member also receive pensions, which cease for the sons when they become of age or when they have obtained situations providing for their wants. For the daughters the pensions cease at 21 years of age or when they get married. Three or more children receive 120 thalers, two children 100 thalers, and one child 60 thalers. This money is especially devoted to the education of the children. The pension of the children is doubled if the father was a widower or in case the widow dies or loses her right as stated above.

The budget of the receipts and expenditure of the association for 1877-78 amounted to 9,893 thalers.

According to my personal observations this institution is not very popular at Bonn, especially among the bachelors, to whom it is a heavy burden without any compensation.

EXAMINATIONS—THE DOCTORATE.

The degree of doctor, since the foundation of the most ancient universities, has always been the academic degree par excellence. It still possesses this quality, but it has lost part of its value, since it is no longer required for admission to the public careers, to which the state examination alone gives access. The intrinsic value and the usefulness of the doctor degree has always been questioned in Germany, and this is still the case. It is certain that it does not have the same value as in France, that it is conferred somewhat at random, and that its value is very unequal in the different universities. In general, the universities of Protestant countries show themselves more exacting than those of Catholic countries. The diplomas of Prussian universities are more difficult to obtain than those of most of the other countries of the empire. It may be observed, moreover, that the old universities show themselves more indulgent than the new ones and the small universities less particular than the large ones: if the diplomas of Jena or of Rostock have no great value, those of Berlin and Bonn are more difficult to obtain. We ought not to attach too much importance, however, to these distinctions; the rules that we have mentioned are not without exceptions, and it is only true to say that the old traditions give room, little by little, to modern tendencies which more and more transform this venerable academic solemnity, at which the form played the greatest role, into a sort of examination, more or less complicated, but in all cases very searching.

The whole of learned Europe was interested in an article by Theodor Mommsen, a professor at the University of Berlin, entitled "The Pseudo

Doctors," which appeared in January, 1876. Dr. Mommsen denounced an abuse in existence in several universities, namely, the promotion in absentia, by which certain universities conferred the degree of doctor in return for a dissertation and a sum of money. Dr. Mommsen related the fact (which was already known, however) that a certain William Dabis had been created doctor in 1873 by the University of Rostock on sending a dissertation which he copied almost literally from the manuscript of a lecture delivered at the Berlin University by Dr. Jaffe in 1868. Mommsen denounced this scandalous abuse in a very violent manner; he ascribed it to the multiplicity of small states and believed Prussia only incapable of such abuse. This article appeared January 12, and on January 18 the faculty of philosophy of Rostock renounced the promotion in absentia. This example was followed in February by the University of Göttingen. In April of the same year, Mommsen published another article, entitled "The Reform of the Doctorate." Bitterly attacking the practices still in existence in the Universities of Giessen, Freiburg, Jena, and Heidelberg, he concluded by proposing the establishment of an association comprising all the universities, from which all those that rejected the three following reforms were to be excluded: 1, equality of promotion fees; 2, an oral examination; 3, the obligation to print the thesis. The excommunication which Professor Mommsen pronounced against several universities, and, in general, against all German universities except the Prussian, brought forth severe replies, among which were those of Carl Vogt, in the *Frankfurter Zeitung*, and of Dr. Heinsen, professor at the University of Heidelberg. In the first circular letter relative to this question, published in the *Reichsanzeiger* (official gazette of the empire, of May 24, Minister Falck pronounced himself against the promotion in absentia, and finally, in a ministerial decree of March 9, 1877, the same minister prohibits the acceptance as valid in Prussia of any other than Prussian diplomas or diplomas granted by those foreign universities which require the oral examination and the publication of a dissertation. In a word, Dr. Mommsen has achieved at least this result, that, in future promotions, the universities will at least keep up appearances.

At Bonn, as we have said above, they are very exacting. We shall not cite here the requirements of the statutes of various faculties relative to the doctor examination, for very often the letter of these regulations is not observed. The examination, moreover, is not public, and it is consequently difficult to determine its value.

The following table shows the number of degrees conferred by the University of Bonn since 1861 :

Years.	Faculties.									
	Protestant theology.		Philosophy.		Law.		Medicine.		Total.	
	Ordinary.	Honorary.	Ordinary.	Honorary.	Ordinary.	Honorary.	Ordinary.	Honorary.	Ordinary.	Honorary.
1861-'62		3	15	.....	3	.....	11	.....	29	3
1862-'63			24	3	1	.....	12	.....	37	3
1863-'64		1	26	3	.....		18	.....	44	4
1864-'65	1	1	35	.....	2	2	17	.....	55	3
1865-'66			34	1	3	2	25	2	62	5
1866-'67		1	18	.....	1	1	19	.....	38	2
1867-'68	2	11	21	18	3	12	37	14	63	55
1868-'69	1	.....	16	.....	1	.....	35	.....	53	.....
1869-'70	2	.....	16	1	2	.....	53	.....	73	1
1870-'71		2	8	.....	2	2	7	.....	17	4
1871-'72 .....		.....	15	2	2	1	40	1	57	4
1872-'73	1	.....	16	.....	1	2	35	1	53	3
1873-'74	1	1	19	.....	.....	.....	20	2	40	3
1874-'75	1	.....	15	1	1	2	26	3	43	6
1875-'76	1	.....	17	2	3	2	27	.....	48	4
1876-'77	3	.....	21	1	3	2	21	2	48	5
1877-'78	3	.....	11	1	2	2	19	1	35	4

It will be observed that the faculty of Catholic theology is not mentioned. This faculty is the only one that, since 1861, has conferred neither the licentiate nor the doctorate. It will also be observed that there are two kinds of doctor degrees, the ordinary and the honorary degree. The latter is conferred on distinguished German and foreign savants who have not passed the prescribed doctor examination. These titles confer the right of becoming a university professor.

THE STATE EXAMINATIONS.

The question of state examinations will enable us to determine exactly the place which the university occupies in the state and in public instruction. The moral power of the university was formerly immense. On one hand it formed a vast intellectual centre of science; on the other hand, its doctor diplomas were required from all candidates for public

situations. But for a long time this general rule has not been enforced, especially in the legal career; for the legal state examination could only be passed after a probation of four years outside of the university and before a jury which the candidate did not know.

At present, the somewhat administrative and national role of the university has singularly diminished; for about 10 years, entrance on administrative and liberal careers has been open to those also who do not possess the doctor title. The title is no longer necessary for the practice of the medical profession, for teachers of secondary schools, for the legal profession, or an ecclesiastical career. The state examination required at present has little or no connection with the university.

In order to get a correct idea concerning the bestowment of these official titles, it is of importance to study successively the regulations and the practical application of the regulations relative to this subject. As a rule, the state examinations must be made outside of the university. All that is required from the candidates is the triennium or quadriennium (university attendance during four years for physicians and three years for the other professions).

1. *The medical state examination.*—The four commissions of the faculty of medicine are: 1. The commission of the tentamen physicum of the students of medicine; 2. The commission specially empowered to confer the right to practise medicine; 3 and 4. The commissions delegated to confer the right to practise pharmacy and dentistry respectively.

The tentamen physicum is the only university examination held during the academic course. It was introduced by Minister Bethmann-Hollweg by decree of February 19, 1861, instead of the former tentamen philosophicum, which dated from January 7, 1826. According to the decree of 1861, all the candidates for the medical profession must pass the tentamen physicum. This examination generally takes place after the fourth semester; that is to say, in the middle of the whole course, the duration of which has been fixed at four years by decree of November 26, 1825. At Bonn the tentamen takes place before a commission presided over by the dean and composed of professors from the departments of anatomy, physiology, physics, chemistry, and botany. The results are marked with three notes, good (gut), passable (ziemlich gut), and unsatisfactory (ungenügend). The last note for one of the five branches is an indication that the candidate is put back for six months (ministerial decree of September 8, 1862, April 4 and July 18, 1864). The candidate has to pay a fee of 30 marks, which is divided among the members of the commission. The dean receives his share as president of the commission.

The principal examination, which admits to the practice of the medical profession, takes place at the end of the university studies, before a commission, which at Bonn is composed of 11 members, 10 of whom are university professors. In Prussia this examination is held either at Berlin or at some other university town. The commission is appointed

every year by the minister. The eleventh member, who at Bonn completes the commission, is also a medical man but is not one of the medical faculty.

A candidate for this examination must produce a certificate of maturity from a Gymnasium and an Abgangszeugniss (leaving certificate) from a university. He must have successfully passed the tentamen physicum, and prove that he has followed as a practitioner the surgical and medical clinics during two semesters, and, moreover, that he has been present at four cases of labor.

The examination comprises anatomy, physiology, pathological anatomy, surgery, ophthalmology, pathology, obstetrics, hygiene, and medical law; likewise, a general oral examination which is of a special theoretical character. The notes are "excellent," "very good," "mediocre," "bad." The last note for one branch, or the note "mediocre" for two branches, means that the candidate is put back for 10 months, but sometimes for 3 months only. He who fails three times to pass the examination is excluded from all further examination; the medical profession is forever closed against him. The examination fees amount to 240 marks.

The commission for the examination of dentists is composed of 3 members: 1 ordinary professor, president; 1 extraordinary professor, and 1 dentist selected outside of the university. The examination covers 4 branches, for each of which the candidate pays 5 marks.

The commission for the examination of pharmacutists is composed of 5 members, 3 of whom are ordinary professors, 1 extraordinary professor, and 1 pharmacist appointed outside of the university. The three ordinary professors represent botany, physics, and chemistry; the extraordinary professor represents pharmacy. The examination fees amount to 138 marks.

Let me add in concluding that the council of the North German Confederation has decided, June 21, 1869, that the literary degree of doctor has ceased to be a condition for the practice of the medical profession.

2. *State examination for admission to an ecclesiastical career.*—A law of May 11, 1873 (the celebrated May law), regulates the conditions of admission to the ecclesiastical career in Prussia. Section 9 of this law prescribes that every candidate for the ecclesiastical career must possess a certificate of maturity from a Gymnasium, must have studied theology during three years at a German university, and, finally, must pass a state examination. This examination, which is intended to find out whether the candidate possesses sufficient general education, goes especially into philosophy, history, and German literature; both the Protestant and the Catholic candidates have to submit to it.

A commission of three ordinary professors of the faculty of philosophy has charge of this examination; at Bonn these three examiners are Protestants.

This innovation, due to the Kulturkampf, seems to find little sympathy in Prussia. It is considered a vexatious measure, even by the

most bitter enemies of the clerical party. Why should there be required, they say, from ecclesiastical candidates a general knowledge of things which is not required from physicians and followers of the legal profession?

3. *State examination for professors of secondary schools (Wissenschaftliche Prüfung).*—A commission annually appointed by the minister meets at a university town for the examination of candidates who intend to teach in Gymnasias, Realschulen, and other secondary schools. At Bonn this commission is composed of 14 professors, 12 ordinary and 2 extraordinary; 11 of these (one of whom is an extraordinary professor) belong to the faculty of philosophy, one to the faculty of Protestant theology, and two to the faculty of Catholic theology.

The regulations of December 12, 1866, signed by Minister von Mühler, fix the conditions of admission to this examination. The request to be admitted has to be made in writing to the president (at present Professor Schäfer). The candidate must indicate the branches in which he desires to be examined, and the degree of diploma he desires to obtain (diploma for the higher classes, the middle, or the lower classes of a secondary school). To this request must be added a certificate of maturity from a Gymnasium or a Realschule, a certificate showing that he has attended a university during three years, a certificate of good character, and a curriculum vitæ. All this has to be written either in Latin, French, or German, according to the branches the candidate wants to teach, languages or natural sciences.

Jews were formerly admitted to this examination only on condition that they did not aspire to the function of professors in Christian schools. This has been abolished by decree of April 6, 1870, because no candidate has any right to a situation by virtue of his examination; the provincial authorities have to give their consent in each case.

The examination comprises general knowledge and the special branches which the candidate desires to teach. Under general knowledge are combined religion, philosophy, pedagogy, history, geography, and the languages. There are four special branches: (1) philology and history; (2) mathematics and natural sciences; (3) religion and Hebrew; (4) modern languages.

The examination is partly in writing and partly oral. In the case of written work each candidate has to furnish a thesis on an historical or pedagogical subject, and another one on the specialty which he is to teach. The commission may allow the candidates to choose their subjects. The work has to be submitted within six months, and the candidate has to state, under oath, that he is the author of the work. The writings on classical philology and ancient history have to be made in Latin; the work on modern languages in the language in question. For the other branches the candidate may choose the language which suits him best. The pedagogical essay is always obligatory; but a thesis of doctor in philosophy defended at a German university, a dis-

sertation which has received the academic prize, or any other printed work may take the place of the written work on the same branch. In case of entire deficiency in the written examination, the candidate is immediately put back.

The commission arranges the conditions of the oral examination. A part of this examination may be done in Latin or in a modern language. Not more than three candidates are questioned at the same time. The commission confers three degrees of diplomas: the first for higher classes, the second for the middle classes, the third for the lower classes. The examination fees amount to 25½ marks.

A ministerial decree of February 3, 1873, prescribes that a candidate for the position of teacher in a secondary school must henceforth be able to teach at least two branches—for example, Greek and Latin—in all the classes of a school.

A decree of March 30, 1867, prescribes for every candidate a probation of one year in a secondary school before a regular position can be obtained. At the end of this term an inspector (Schulrath) makes a report on the results of this probation, which are communicated to him by the director of the institution.

4. *The state examination for a legal career.*—We have just seen that if the title of doctor is no longer required for admission to the careers for which the faculties of medicine, theology, and philosophy prepare the candidate, it is at the seat of the university and before a jury of professors that the examinations which give access to these careers have to be made. It is not the same for the legal career. It is true that a three years' course at the faculty of law is required, but the state examinations do not take place at the seat of the university, although the examiners are in general professors.

The following is an abstract of the law of May 6, 1869, relative to these examinations:

To become judge, substitute, lawyer, or notary public, the candidate must possess a certificate of maturity from a Gymnasium, must have studied law during three years at a German university, and have passed successfully two legal examinations.

The first examination takes place at a seat of a court of appeals; the second examination takes place at Berlin, before a commission appointed by the minister of justice.

The first examination is in writing and oral. It covers especially public private law (*öffentliches Privatrecht*), Roman law, and the principles of constitutional and administrative law. The candidates who pass successfully are appointed *Referendarien* (young lawyers practising without emolument). The *Referendarien* cannot present themselves to the second or great examination before they have been through a practical probation of four years in the courts of law with a lawyer or notary public. The great examination is in writing and oral; it must be an

essentially practical one. The successful candidate receives now the title of assessor, which opens the way to the various legal careers.

From the foregoing it results that a person who chooses the legal career has to go through a course of preparation (after his nine years' course in secondary schools) of eight years.

Of the 2,000 students who attended the faculties of law in 1876, about 1,500 presented themselves to the first examination, and most of them passed successfully.

APPENDIX.

The Society for the Study of Questions relating to Superior Education in 1878 published special accounts of the universities of Bonn, Göttingen, Heidelberg, the Austrian, Belgian, and Dutch universities, the universities of Oxford and Cambridge, and superior education in France.

The object of the society is to study methodically the institutions of superior education in Europe and other parts of the world; to entertain for this purpose relations and regular correspondence with the principal foreign universities; and to record in a periodical publication the results of this permanent investigation, together with the opinions which members of the society may have expressed on the subject. Contributors of 500 francs to the funds of the society become honorary members; and active members in Paris pay 20 francs annually; in the provinces 10 francs, and in foreign countries 12 francs.

The officers of the society in 1878 were as follows:

Executive committee.—President: M. Laboulaye, senator, member of the Institute, administrator of the College of France. Vice-Presidents: M. Pasteur, member of the Institute, honorary professor of the faculty; M. Janet, member of the Institute, professor in the faculty of letters; M. Bufnoir, professor in the faculty of law; Dr. Le Fort, member of the Academy of Medicine, professor in the faculty of medicine. Secretary-General: M. E. Lavisse, master of conferences at the Normal School. Assistant Secretaries: M. Vernes, master of conferences in the faculty of Protestant theology; M. Edward Dreyfus-Brisac, lawyer. Treasurer: M. Joseph Reinach, publicist.

Council.

1. Founders: M. Beaussire, member of the Chamber of Deputies, honorary professor of the faculty; M. Paul Bert, member of the Chamber of Deputies, professor in the faculty of sciences; M. Bertholet, member of the Institute, inspector-general of superior education; M. Gaston Boissier, member of the French Academy, professor in the College of France; M. E. Boutny, director of the school of political sciences; M. Bufnoir, professor in the faculty of law; M. Michel Bréal, member of the Institute, professor in the College of France; M. Fustel De Coulanges, member of the Institute, professor in the faculty of letters; M. Paul Gide, professor in the faculty of law; M. Dr. Jaccoud, member of the Academy of Medicine, professor at the school of medicine; M. Paul Janet, member of the Institute, professor in the faculty of letters; M. E. Laboulaye, senator, member of the Institute, administrator of the College of France; M. E. Lavisse, master of conferences at the Superior Normal School; M. le Dr. Le Fort, member of the Academy of Medicine, professor at the faculty of medicine; M. le Dr. Lionville, member of the Chamber of Deputies, assistant professor of the faculty of medicine; M. Loewy, member of the Institute; M. G. Monod, director of the Superior School (École des hautes études); M. Gaston Paris, member of the Institute, professor in the College of France; M. Pasteur, member of the Institute, honorary professor of the faculty; M. G. Perrot, member of the Institute; M. Ernest Renan, member of the French Academy, professor in the College of France; M. A. Ribot, member of the Chamber of Deputies; M. Schützenberger, professor in the College of France; M. H. Taine, member of the French Academy, professor in the school of fine arts.

Isaac Pereire, Baggio, Hubner, Lavalley, Ménier (deputy), Bischofsheim, Adolphe d'Eichthal, Gustave d'Eichthal, Goldschmidt, Hachette et Cie., Georges Masson, Adolphe Moreau, Joseph Reinach, Baron Alph. de Rothschild.

The address of the society is No. 15 rue des Saints-Pères, Paris.

This volume, from which the foregoing circular has been translated and abridged, contains the reports of the investigations of the society for 1878. From the preface to it, written by the secretary-general of the society, M. Ernest Lavisse, we learn that it includes general but precise accounts of the German and English universities, of superior education in Belgium and Holland, the teaching of law in the Austrian universities, a bibliography of superior education in Germany, an historical document on superior education during the Revolution; an historical essay on the same subject; and a résumé, with a discussion relative to the same, of the statistics of superior education recently published by the minister of public instruction.

The society follows in its works the order which was fixed on the day of its organization. It has undertaken to study first generally the institutions of superior education in the principal states of Europe and America. This work—completed as to Germany, Belgium, and Holland, and begun for England—will be continued. But the society holds that it is important from the beginning to prosecute special researches. The sections of law, medicine, sciences, and letters (the first two having subdivisions), have prepared inquiries which most of the society's correspondents have already received. Their answers will throw light on the details, just as the answers to the first inquiries have thrown light on the general subject.

The space given in this volume to foreign countries is considerable. "At the time when foreign institutions of learning, especially those of Germany," says the secretary of the society, "were placed before us as models, it was necessary to examine whether these models could be imitated in France; if so, to what extent, with what precautions, and after what preliminary reforms; but our investigation is now so far advanced that we may devote more attention and space to our own affairs. It is not only that we are not sufficiently familiar in France with foreign institutions, but too little is known in this country concerning the persistent and successful efforts which have been made, either by the administration or the faculties, for the reformation of our superior education. The article in this volume on the statistics of superior education will enable the reader to measure the progress made during ten years; and it is also a study of the ensemble: here, too, special study has yet to follow. We want our colleagues in the departmental faculties to inform us of the real condition of these faculties, for example, of the success of the conferences and complementary courses, so that this information, furnished by individuals, may be placed within the reach of all, so that they may know at Douai what is being done at Bordeaux, at Nancy what is done at Lyons."

The future publications of the society will contain a chronicle of the official acts relative to superior education in France since the last reopening of the faculties; the programmes of the French faculties, with remarks on the organization of the work in the conferences and laboratories; the continuation of the accounts of foreign institutions of learning; the proceedings of the meetings of the society, the general assemblies, the council, and the various sections of the society.

The work of the sections (which will henceforth be in possession of important documents) will be pushed on with renewed activity. The law of July 12, 1875, provides (article 24) that "the government shall present within one year a bill having for its object the introduction into the superior education of the State of such improvements as are admitted to be necessary." A year later M. Waddington had such a bill prepared, but circumstances prevented him from submitting it. The ministerial report which precedes the statistics of 1878 alludes to the provision of the law of 1875; at the same time it makes known the wishes of the faculties and the intentions of the government relative to the necessary improvements. On the principal points of reform, viz, the creation of university centres, the relation of the universities or faculties to the

State, and the reforms in instruction and examination, the minister rather submits than solves questions, thus inviting discussions on the subject, and giving the society an opportunity to submit to the government and the public authorities a certain number of useful propositions. On each of the topics which have been assigned, the various sections will prepare a report, which, together with the information relative to foreign institutions of learning, will be submitted for debate.

It is the desire of the society that discussions of the same kind be opened in the already numerous groups of members of the society who belong to the faculties in the provinces, or who reside in the chief towns of these faculty districts.

In order to throw light on the difficult and little known question of the reform of superior education in France, nothing is more necessary than such deliberations between competent men who combine personal and direct knowledge of the French educational system with a thorough knowledge of foreign institutions of learning.

CIRCULARS OF INFORMATION

OF THE

BUREAU OF EDUCATION.

No. 4-1882.

INDUSTRIAL ART IN SCHOOLS, BY CHARLES G. LELAND,
OF PHILADELPHIA.

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LETTER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., November 20, 1882.

SIR: I have the honor to forward herewith the manuscript of an article prepared by Charles Godfrey Leland, esq., of Philadelphia, on the subject of industrial art in schools. Mr. Leland's paper is a presentation of the matter from his standpoint and the result of his own work and experience. No one can fail to see how valuable it is as a contribution to the solution of existing problems in education, art, and industry.

I recommend its publication as a circular of information, and am, sir,
Very respectfully, your obedient servant,

JOHN EATON,
Commissioner.

The Hon. the SECRETARY OF THE INTERIOR.
Publication approved.

H. M. TELLER,
Secretary.

INDUSTRIAL ART IN SCHOOLS.

I.—INTRODUCTION.

ORDER OF DEVELOPMENT OF DECORATIVE AND INDUSTRIAL ART.

Constructiveness, or the faculty of making things which are useful or ornamental, is in man innate or instinctive. It might be said that to produce useful objects is the result of the struggle for life; but the tendency to create that which is simply artistic results from no such urgent need, yet it is found wherever the former exists. In the rudest prehistoric times, in the earliest stone age, men and women made ornaments, though they were only strings of the commonest shells or beads of dried clay. Before the mammoth and cave bear had disappeared primeval man etched with great skill and taste their likenesses on their own bones. Great stress may be laid on the fact that, as the flower precedes the fruit, decorative art is developed in a race before it attains proficiency in the practical. Before men had good axes or knives, ploughs or saws, they made jewellery and embroidery far superior in many respects to anything now produced anywhere. We can imitate the shield described by Homer, but the artist does not live who could design anything so elegant and original.

This universal truth, that man develops the ornamental during the infancy of every race before the useful, is illustrated in every individual. The child who cannot as yet make a shoe or file metals or master a trade can, however, learn to design decorative outline patterns, mould beautiful pottery, set mosaics, carve panels, work sheet-leather and *repousser* or emboss sheet brass. He or she can cut and apply stencils, model *papier maché*, or *carton-pierre* (a mixture of composition and paper pulp), inlay in wood, and make a great variety of elegant objects. The child corresponds to the primitive man. It is not improbable that the brain of the boy of twelve of this age, if it could be measured, would be found to be about the same as that of the early man of thirty. It has been definitively ascertained that the brains of the Parisian of the thirteenth century, a period when Gothic art in all its luxuriance adorned every object, were much smaller than they now are.

EDUCATIONAL SIGNIFICANCE OF THIS ORDER.

The deduction from this is that, as the child is capable of executing works of simple or easy decorative art before it can produce much that

is useful, we should consider this fact in education. Of late years, almost simultaneously, the men who are interested in education have asked one another, "How is it that we have taught the young nothing but reading, writing, and similar arts? We have given what we call culture to youth, and they leave school as little fitted to make a living as on the day they entered it." It was very natural indeed that this complaint should rise from the growing republicanism of the age, and it was quite as natural that those who inspired it should demand that children should be taught to make a living while learning to read, write, and cipher. Of course by "making a living" working at a *trade* was understood, and the first effort in consequence was to teach trades. And this for boys under fourteen years of age has not been a success. If it had really been possible for little boys and girls to make shoes, file iron and brass, and set type, capital would have long ago employed them; as it is, the fact is patent that to thus employ them is cruelty. It is not really right that children should ever be employed at un congenial pursuits.

But, as the Hebrews said of old that when the tale of bricks is doubled Moses comes, so the question rose as to what children could make at the time when there was simultaneously spreading over the civilized world a demand for decorative and hand made art. The vast developments of capital, wealth, and science during the present century have naturally led to luxury and culture. With them scholarship and criticism are teaching wealth how to employ itself. Culture has also awakened humanity or benevolence. And it is gradually or rapidly being realized that children can while at school profitably practise decorative arts. It is also quite as true that this practice, far from interfering with the "regular studies," actually aids and stimulates them. While the minor arts, guided by a slight knowledge of decorative design, are so easy as to be regarded by all children as a recreation, they are at the same time of practical value in training the eye and hand and awakening quickness of perception. There have come under my observation a great number of instances in which children who have been regarded as dull in everything have shown great aptness and ingenuity in designing, modelling, or carving. When this skill is awakened, there comes with it far greater cleverness in those studies or pursuits in which the pupil was previously slow. I believe it to be a great truth, as yet too little studied, that sluggish minds may be made active, even by merely mechanical exercises. This holds good as regards the practice of the minor arts by children. It is somewhat remarkable that while everyone is quick to observe mental ability or activity when transmitted from progenitors, very few notice the innumerable instances in which it is developed by education or circumstances. It is not a matter of theory, but of fact and observation, that all children who practise decorative arts are thereby improved both mentally and morally. The consciousness of being able to make

something well which will sell gives them proper pride and confidence in their ability to master other studies. It also conduces to quiet habits and content. Every mother knows the value of a box of tools or of a small printing-press, of paints, and clay. When the use of these is properly taught in an artistic manner, children take unusual interest in them, as I have had ample opportunity to observe in the Public Industrial Art School of Philadelphia, which I have directed since its beginning. A girl of twelve loves modelling none the less for being taught how to make a vase which may be worth ten dollars.

A much larger proportion of all the elegant art work of India, Persia, Egypt, or indeed of the whole East, is made by mere children than we of the West would imagine. Much of the most elaborate wood carving of Italy, the Tyrol, Bavaria, and Switzerland is cut by little fingers. Art pottery in Spain employs very young girls and boys. Of late years it has been definitely ascertained that very little children in the Kindergarten organized on the plan of Fröbel are capable of developing much more artistic ability than has been supposed; and this, far from straining the mind, strengthens it. If a child can learn to sew, read, sing, draw, and model in the Kindergarten, it can surely pursue higher branches, both literary and manual, in higher schools. The system on which this industrial art work should be taught is as follows: It does not merely consist of certain definite branches, such as modelling or carving according to patterns; *it is the learning how to design the patterns, and then working them out in any material*, such as wood, clay, brass, embroidery stuffs, or stencils. There are fifty or a hundred such minor arts, and anybody who can draw or design can with very little practice in a few days execute them fairly in any substance which will retain impressions. It is a remarkable law of nature or of humanity that all the minor arts, or such branches of industry as are allied to ornament, are very easy, and can generally be so far mastered in a day by anybody who can draw as to enable the pupil to produce a perfectly encouraging result. But industrial art, to be taught in schools, need not and should not be limited to ornamental work. This is to be at first followed simply because it is the *only* work easy enough for children and girls. Carpenter's work, or joinery, in its rudiments, or in fact any branch of practical industry, may be taken up as soon as the pupil is fitted for it. Industrial art in schools covers the ground or fills the time intervening between the Kindergarten and the industrial school, but it blends with and includes the latter. It is characteristic in this, that the system, as I conceive it, is capable of being introduced into every public or private school in the country or into any institution where there is a preceptor who has some knowledge of drawing, with sense enough to apply it according to certain elementary hand books of art. To aid all such teachers I have prepared a series of cheap art-work manuals.¹ These consist of instructions in decorative design,

¹ Mailed for 35 cents each, by the Art Interchange Co., 140 Nassau street, New York.

ceramic or porcelain painting, tapestry or dye-painting, outline and filled-in embroidery, decorative oil painting, wood carving, *repoussé* or sheet brass work, leather work, papier mâché, modelling in clay, with underglaze faïence decoration, and stencilling. The illustrations, working size, of one book are generally applicable to all. As I know of no other cheap manuals of the kind in any language which can be used for instruction, I have been compelled to prepare these as an absolutely necessary aid to those who cannot obtain teachers.

OUTLINE DRAWING AND DESIGN AS A PREPARATION FOR INDUSTRIAL ART WORK.

Before setting forth the practical details of industrial art work for schools I would say something as to the method of drawing on which it is all based. This consists of making the pupil design original free hand patterns as soon as he or she can draw a clear, light line with accuracy and confidence. The boy or girl should be taught to draw such a line, like a spider's web or hair, on rather smooth paper, with a sharp, long, *hard* pencil. There should be no redrawing on the line, no stumping, rubbing, or scratching, or sketching in breaks. As soon as this can be done let the pupil copy any simple leaf or ornament accurately, and then repeat it, let us say, twelve or twenty times in a circle, but in varying positions and of various sizes, so as to make a garland. After this, various kinds of finials or ornaments, such as the spots on a pack of cards, buds, flowers, leaves, trefoils, fleurs de lis, &c., with stems added, may be made into circles, singly, doubled, or alternated. The pupil should then be taught the principles of construction lines. He is shown how to change a circle into a spiral and that a spiral or volute consists approximatively of semicircles. Then he may learn that any shoot or branching or spiral line thrown off anywhere from either side of a circle, or spiral, or other curving figure so as to form a long *✓* or *ℵ*, or gradually departing curve, forms invariably the skeleton of an elegant design, and that it is not possible that it can be anything but graceful. This is an invariable law, and on it all outline decorative design as to curves is based. The next step is to double these lines, either as parallels or to form gradually diminishing "vines" or cords, and then ornament them. Ornamenting is chiefly effected by applying *finials*, or end ornaments, such as flowers, card spots, &c., and *crochets*, or side ornaments, which are like thorns on a rose twig. He then learns to double or quadruple the whole design. These principles of the *✓* offshoot are next applied to the wave line, made of combined semicircles for borders. After a little practice in "throwing off" free hand spirals or curves and in examining a few examples of the decorative art of different ages, even young children begin to design with taste and skill, and when they once begin their progress is rapid. It may be observed that in all this there is no *picture* making, no shading, no very black lines. The first designs should all be large. Anything like the *literal* imitation of small leaves and petty flowers or any use of heavy

lines should be avoided. As a rule, nothing should be drawn which cannot be perceived by the naked eye at the distance of fifteen feet. It is a rule, almost without exception, that all children in original design instinctively make petty figures. They will draw scores of diminutive buds and leaves on a page. Just so in the infancy of a race; it perfects the pettiness of illuminating manuscripts before designing grandly. Now, it is always easy for one who can draw "large" to come down to petty patterns, but it is impossible for the petty worker to rise to great execution.

To learn to make designs the pupils may freely use not only compasses and rule, but circles, curves, and ornaments cut from tin or cardboard, to be used as stencils. The youngest soon learn how to repeat and combine these so as to form borders or centre ornaments. The art of invention is not only rapidly developed by this short-hand method of drawing, but there is also developed with it a greater interest and confidence—the feeling, in fact, of creativeness or being really an artist. Now, if with these merely mechanical aids we combine constant practice in free hand drawing from the shoulder, it will be found that the pupil soon abandons the former and relies on the latter. No one swims long with bladders after he can dispense with them. This method is, therefore, a union of technological and free hand drawing applied to that merely outline decorative design which has a place between the two.

No person not familiar with the practice can have any idea of the extraordinary rapidity with which children learn to draw and design when they are confined to simple outline patterns for decorative work under the stimulus of invention. It is because there is no shading or "effects" or "picturesque" mingled with their drawing to bewilder their brains that they advance so quickly. As soon as they have a few lines and finials by heart, and know how to set the latter together to make circles, &c., they begin to design and combine boldly. The extreme degree of free hand sweep and the bold dash which result from making branching curves give a character to this system of drawing which is not found in any other with which I am acquainted. As the pupil is step by step familiarized with a great variety of curves and ornaments he finds that to combine and vary them becomes easier and easier. As a rule, with very rare exceptions, or in my experience with almost none, the child from twelve to fourteen years of age who can draw a clean, light, free hand line can be taught in a few weeks, at the utmost in a few months, to design beautiful original patterns. By this I mean patterns worth executing in art or patterns worth money. When this is acquired all is acquired. Either technological or artistic drawing may then be learned in half the time usually demanded for their mastery.

FIRST INSTRUCTION IN COLOR.

When the pupil can make a good design and is desirous of advancing to simple decorative painting, he is taught to fill in the ground with

India ink or any flat color, and from this proceeds to varied monochrome or to large illumination. According to the old methods, by which everything was taught at once, such as drawing and shading, outline and blending, the mere beginner painted flowers in all tones and hues. I believe, with Turner, that it is through monochrome or single colors alone that a true colorist can be made. If we take two children and teach one to draw and shade together in the old style, and then to "paint flowers" or to mix colors from the first, and then train another through free hand, outline, and monochrome to blending, it will be found that the latter will, at the end of the year, be far in advance of the former in every respect. I have tested both methods, and found that the superiority of what may be called the single method is incredible. Simple decorative art is the best road to high art, and it has this advantage, that those who stop by the way at any stage have at least learned something by which money can be made.

UTILITY OF OUTLINE DESIGN IN OTHER DIRECTIONS.

If the pupil does not take up color, and prefers, let us say, needlework, we find even here that a knowledge of outline design is more practically useful than would at first appear. The world always declares that the first thing that all girls should learn is plain sewing. But good plain sewing is a really difficult art. Experience has fully shown that crewel work and outline embroidery are very much easier. The child who begins with easy work may be led to hard work in half the time in which the latter, by itself, can be learned. This rule constitutes the beginning and the end of the whole system of industrial art. Now, the girl who can invent and draw her patterns always "outlines" and "crewels" much better than the bungler who has to rely on begged or bought designs. Few would believe at what an early age little girls who try can make their patterns. It does not take a child long to learn that with a teacup, a cent, and a pencil she can draw a semicircle stem with from one to three grapes at the end, or that the stem may be made double or with two lines. It is no harder for her to learn to arrange these sprigs in a circle or in a straight border. With a very little practice in such stencilling she learns to draw. Those who object to such a method as mechanical have never tried the experiment of urging pupils to trace or use the compasses, rule, and stencils. If they will do so, and teach them at the same time to draw free hand lines, they will find that boys and girls soon become impatient of using what are still in most schools surreptitious and forbidden aids. Perhaps if man were given all he wants in this world he would want much less than he does.

It is the same if the pupil prefers modelling in clay. Those who begin by drawing well shape well. Their inventiveness has been awakened. Nothing conduces to inventiveness so much as design. I incline to believe that any man who can invent a machine could have been an

artist, and that every true artist is only an inventor on another road. It is not theorizing when I say that the pupil who can design, immediately shows his superiority in modelling in clay. All children in modelling follow a leader or go in a crowd. If they are set to making petty balls and blossoms and miniature fruit and similar silly and mean work, they will keep on making mean things. It is a mistake even in the Kindergarten to give children *petty* patterns. In the modelling class if one gets a new idea, such as making a cat following a mouse on a vase, or a giant frog, all the rest will take to cats, mice, and frogs. If one makes something great which is admired, they must all do the same. And after the mere rudiments of manipulation are mastered, it is better that the pupils should work on a large scale in great variety of subjects than be kept to petty devices. It is the fault of all current systems of drawing that they limit the youthful mind to *small* inventions. The boy or girl who can design has in a way learned to invent, to seek for original devices, and what is learned in the lead pencil expands in the clay.

II.—PRACTICAL TEACHING.

MATERIAL REQUIRED.

I will suppose that the reader is desirous of introducing industrial art into an ordinary school. He has, I assume, carefully read what I have so far written on design and the ease with which children acquire it, if properly taught. Drawing is therefore the first step. For this will be required, of course, paper. Good, *smooth*, thin, hard drawing paper is the best for this purpose, but there is sold all over the country at about two cents for a very large sheet a kind of firm, rather smooth wrapping paper with a good body, which is quite as good for ordinary work. It is generally used for design by many artists. It should be smooth, but not so glossy but that an H or hard pencil will make a good mark on it. Hard and medium pencils, with fine sand paper for sharpening points, compasses, india rubber in separate pieces—not at the ends of pencils—and a foot rule are of course requisite. Pupils should never draw with short pencils. Strange as it may seem some like to do so, and will even cut their pencils in half. Short pieces may be utilized in tin holders, but long pencils are best. A collection of circles and curves of hard rubber, wood, or tin (e. g., Devoe's curves) will be found useful. Drawing boards are not essential when there is a good, smooth, flat table; a blackboard is, however.

DESIGNING.

Design is the key to all arts. It is established that in nine trades out of ten a knowledge of it is of use, and in about eight of these it generally leads to foremanship. A very slight familiarity with modelling is also of great practical value. What drawing-design is to modelling, such is modelling to all arts where form is to be inspired with taste.

Both can be learned by girls, or by all children, of almost any age. There are still in the world many people who do not see the "practical advantage" of knowing how to read and write. Those who cannot see the real use of drawing-design and of modelling in education are quite as blind or narrow minded. And those who would make "mother wit" the main dependence of a boy are apt to forget what a vast proportion there are of orphans in this relation, and that when mother wit is wanting what an admirable substitute is provided by stepmother education.

It may be borne in mind that the principal can learn to design, model, and carve with the aid of a manual and teach while learning. If his designs or patterns are on a large scale and simple, they will be all the more elegant and salable. Petty work, such as cannot be seen across a room, is generally worthless. To revert to design, I would here observe that one reason why beginners are so prone to cover a pattern with petty leaves and mean details is because they rest all the weight of their body on the *hand* while drawing. In this position there is not more than an inch of sweep for the point of the pencil, and the whole arm must be moved to enlarge this compass. Resting on the wrist gives a sweep of perhaps two or three inches, though not to all. When only the arm hardly touches the table the wrist sweep is again doubled. But those who draw free hand from the shoulder can with confidence cover a space of three feet diameter. Turner, the great painter, could do this, as he always painted without a maul-stick, and every child can learn to do it. It not only gives greater freedom of execution, but much more accuracy.

USE OF COPIES.

If the teacher is *capable*, children may be taught design from the black board alone, without drawings or patterns. None of the wornout lithographs such as generally constitute "copies" should ever be set before students. After a boy or girl can once draw lines decently, there is no occasion to copy anything. If "copies" or pictures are then given out, it should be for *motives* or suggestions. They may be doubled or varied or used to supply finials or ornaments. Pupils should be encouraged to change and combine figures, devices, or decorations. They should be taught to seek them in carpets, on wall papers, book covers, and the coverings of furniture. They will soon discover that whenever there is in these a connected *design*, and not a mere strewing or collocation of loose objects, it is extremely easy to understand and equal it. Nineteen-twentieths of all the most expensive carpets and wall papers sold are inferior in design to what nineteen children out of twenty could produce in a few months if properly trained. The general principles laid down in the Manual of Decorative Design will be found sufficient for any teacher who can draw at all to instruct any class.

EARLY CHOICE OF SUBJECTS.

It may be here observed that the whole secret of learning to draw

consists of making an easy beginning in the simplest rudiments and in resolutely persevering. There is no "gift" or "talent" necessary. A lady once declared to me that there would be no use of attempting to teach her how to draw, that she had tried and failed. "And what did you try to draw?" I inquired. "I tried to draw a *horse*" was the reply. Her next remark was to the effect that she supposed that "a horse or a man" constituted as simple a figure as could be imagined. When educated people are so ignorant, it is not strange that the art of drawing even simple patterns is supposed to require a "gift."

As soon as the children produce anything well done, it should be duly praised. When any design is executed let the pupil copy it on a full scale on a sheet of superior paper, then fill in the background with india ink and hang it up on the wall, where it may serve as a model. The clever ones should be induced to teach or aid the less advanced. Among the young, the most disagreeable and hopeless scholars are the conceited "geniuses" who have been "discovered" or picked up, generally by some one on the lookout for wonders. They are the least inclined to follow a regular method of instruction, and aim from the beginning at making "pictures" and astonishing their admiring friends. All first efforts should be destroyed. It cannot be too earnestly instilled into the minds of the young that what is to be observed in school is not to make works of art, but to learn how to make them. There is nothing so inartistic as impatience. Those who would execute a masterpiece at the beginning seldom have one to show at the end.

NEEDLEWORK.

The class of girls in needlework may begin with outline embroidery or filled-in work or crewel as taught by manuals. There is a very easy and effective kind of work made by stencilling or painting flowers in flat or dead color on brown holland, light canvas, or any similar stuff. The colors may be either dyestuffs or water colors. When the flowers or other patterns are painted they may be surrounded with an outline in corresponding color of woollen or silk needlework. This is very easy work, yet rich and effective. The beneficial result of making even little girls in this class draw their own patterns will show itself from the first in all. With very little management, all that is made in this class can in most places be sold at a profit; if not on the spot, by sending it to "depositories" or art stores in the cities. From ten to fifty dollars' worth of materials will suffice to establish an ordinary school class in needlework.

MODELLING IN CLAY.

The next branch of industrial art study is modelling. If a teacher can draw or design even a little, he or she may, with the aid of a manual, confidently undertake to conduct such a class successfully. Clay fit for

the purpose is to be obtained in most places at from three to five cents a pound. It should be kept in a waterproof cask or box. A very large box with a lid is best, as it serves not only to hold the clay, but also for a depository for the work, which must be kept damp from day to day. With this certain tools are requisite, the forms of which are given in the Art Work Manual for Modelling. A set costs from 50 to 75 cents. Any boy with the ordinary American gift for whittling can reproduce them in pine wood. The fingers are, however, the principal tools. Some artists produce very good work with such adventitious aid as old spoons and any chance piece of stick cut into the form which the need of the moment may suggest. A pair of carpenter's compasses are, however, indispensable. As mud wasps occasionally make raids on sculptors for material, so in our school the youthful modellers now and then appropriate the tools of the wood carvers for certain mysterious purposes, a bent gouge being a favorite implement wherewith to make scales on fishes.

Modelling is drawing in clay. Any child who can copy an old shoe with a pencil can make it from a plastic material. More than this, it is easier to model anything than to draw it. A little boy can make a mud pie much better than he can copy it on paper. An old shoe, or a plaster cast of a rabbit, life size, forms a perfect model for imitation. When jugs, jars, or vases of green or wet clay can be obtained from a pottery it is easy for the children, after a few days' practice, to ornament them with flowers, lizards, fishes, crabs, leaves, or other figures. When the jars cannot be obtained they may be made by hand; thus, cylindrical cups are easily formed around a broad pipe of pasteboard. Baskets of clay are often made in beautiful forms. A corrugated ground is produced by breaking a stick in two and pricking the clay with its jagged end. When finished and dried articles may be sent to a pottery and fired. The process of coloring and glazing such work is not more difficult than rough water coloring. It is fully described in the Manual of Modelling. All the requisite materials for it may be had by express on sending an order to any dealer in artists' materials in any city.

TANGIBLE RESULTS OF INDUSTRIAL TRAINING.

The practical results of a combined knowledge of decorative design and modelling are these: The pupil learns to use the eyes and fingers in a way which will render any work easier. The boy or girl who can draw and model even tolerably well can easily find a situation wherever casting or any other kind of plastic work is executed. There is a great demand for boys with such knowledge. I could, without exception, find paid places in a great variety of manufactories for all the pupils in the Public Industrial School who have had about twenty lessons in design and modelling.

It may be well in this place to consider one or two of the popular objections to industrial art in schools. One is of those who looking at vases with flowers or frogs admit that they may be all very pretty, but

that they cannot see in such "fancy work" any trustworthy means for getting a living. Of another class are those who examine the work critically, ask its market value, and then inquire if it could not be made more cheaply by machinery, and, if so, whether it is worth while to set children to making it. Since this page was begun a distinguished reformer, whose name is known to every reader of a newspaper and who professed great interest in art in schools, began with me by saying, "I wish to see some of your children's work. I want to know its market value and how much money it will bring. You see I am a *practical* person." I did not see it, for it seems to me to be most senseless and unpractical to expect goods of average market value from mere children just beginning to learn. There are people "deeply interested in education" who inquire what is the current shop value of the work of a child in its second or even first lesson. It is perfectly true that in the hands of competent teachers and directors the average art industry school may be always made to meet its expenses; yet it is almost as unreasonable to reckon on this as to expect that reading and writing will "pay" from the alphabet onwards. In the words of William Gulager, of Philadelphia, "Whatever is worth teaching is worth paying for." Meanwhile it is worth remembering that wherever ornamental castings in metal of any kind are manufactured, or wood, plaster, terra cotta, stone, or any substance whatever is made to assume shape beyond size, there the workman who can design and model even but a little is wanted.

WOOD CARVING.

I consider that, as a general rule, the three branches of design, embroidery, and modelling are the best to introduce into an ordinary school. Yet in some places wood carving may be preferred by pupils or parents to modelling, as I have known it to be the case in England; or it may in time be added to the three branches already described. For wood carving a very strong common table and about two dollars' worth of good tools and fifty cents' worth of wood to each pupil may be called an outfit. The steps in wood carving from mere drawing to cutting are very gradual. It is to be desired that children in schools should be confined to "flat cutting," which is easy and profitable, and not be led at once, as they are in many schools, to ambitious and difficult sculpture "in the round."

With *design, embroidery, modelling, and wood carving* a school may be said to be fairly established as to industrial art. They may all be learned in the rudiments by book. When well established in these rudiments, pupils can advance themselves to the higher branches. What I have described may be made a part of the course in every village or private school. When *design* is acquired, *every* art is acquired for those who want it. When these four branches are familiar to teacher or pupil all other varieties of the minor arts are really trifles, so far as acquisition is concerned.

STENCILLING.

The next branch may be stencilling. The advantages of this art are but little understood. By means of it every whitewashed wall in the country might be made to look much better than it would when covered with ordinary wall paper, which paper, by the way, has been proved to be in innumerable cases when damp a fruitful cause of malaria. A well stencilled wall is artistic, since only a good designer can draw the pattern, and it requires artistic taste to combine the stencils in more than one color. This would give profitable employment to thousands in every State. It consists of nothing but drawing designs, cutting them out of card board or sheet metal, and then painting the patterns thus cut with a broad brush and colored washes or paint on walls or other surfaces. The art is as yet in its infancy, and the vast majority of all the stencils sold are of a very commonplace, old fashioned character. The expense requisite for stencilling would be about 50 cents a square yard for best card board; brushes, from 30 cents to 75 each; washes, best quality, 25 cents a gallon; paint, at the ordinary prices.

PAPIER MÂCHÉ.

Papier mâché is a very cheap art, little known and capable of wide application. It is closely allied to modelling in clay and casting. By means of it all flat surfaces can be decorated with permanent reliefs as durable as wood. Every kind of merely ornamental architectural moulding can be made of pressed and moulded paper. It is also worked by hand like clay. It is capable of being combined with paste, glue, clay, chalk, leather in fragments, pulp, peat, according to many recipes which change it to as many different textures. The number of practically useful as well as ornamental objects made from these combinations is really incredible. I know of one man who by manufacturing a very simple object indeed from papier mâché has within a few years made a fortune. There is no person who, able to design and somewhat familiar with modelling in clay, could not make salable objects in this material. It opens a wide field to inventiveness, and can be practised by girls and boys at home as well as made on a large scale in factories.

SHEET LEATHER WORK.

In common with stencil and papier mâché, sheet leather work is very little understood or practised. It consists of pieces of leather soaked in alum water or plain water for a few hours, on which patterns are then drawn by means of a toothed wheel pricking through a design drawn on paper. This pattern is outlined with a small hand wheel or tooling instrument, and the background put down and roughened with a common stamp or punch. When dry the pattern may be painted or stained with black or any other dye. Wet leather is capable of as much modification as clay or papier mâché. Not only can sheets or skins be util-

ized in its manifold applications, but also all kinds of bookbinders' and shoemakers' waste. It can be applied to any surface, such as chairs, tables, or cabinets.

CERAMIC PAINTING.

Of ceramic or porcelain painting little need be said if it meant no more than covering plaques or saucer plates with feeble pictures of flowers and dogs' heads, as it generally does; but there is a vigorous style of purely *decorative* tile painting in monochrome, or single colors, which is quite unknown to most painters, and which will yet become popular and possibly extinguish the current debilitated imitations of ivory, drawing paper, and canvas pictures. The tile, as a wall ornament, should as a rule be decorated in single colors, simply and boldly designed, so as to be clearly visible at a distance, in common with the architectural details of a house. Were this kind of tile painting commoner the art would be more legitimate than it now is, and be more respected not only by those who understand art, but by the ignorant. Single color china or stone ware painting may be begun in stencil and carried on by hand. Those who have gone on from design to filling in the ground with color will find it very easy. There is no certain sale or regular demand for such fancy work as is generally found on the plaques and tiles of art depositories and church fairs, but a single-color tile painter who can work rapidly from good designs and also make them can always find a market. Therefore this form of industrial art may be introduced into schools, though it is not to be desired that it should become a leading branch of industry in them.

The teacher should beware of letting pupils choose too freely what they will do. Left to themselves, all the silly ones, and not a few of the wiser, would elect "to paint," probably to paint pretty little posies in water color, oil, or china, which would be the positive end of all practical or useful art industry with them. If you would keep a girl from becoming an artist set her at flower painting. There is, it is true, a natural appetite for color and flowers as there is for sugar, but this is no reason why people should be fed on it. It should only be gratified after being well nurtured on design and monochrome.

REPOUSSÉ WORK.

Embossing sheet metal, especially brass, though popular as an amusement for amateurs, is less generally *useful* than any of the branches already described. It requires a finished knowledge of design and a skill in tracing which few possess, if really good work is to be done. By means of it, sheet metal is hammered into low relief by working it always *cold* on a piece of board, or into much higher relief and more varied form by beating it on a bed of composition made of pitch, plaster of Paris, and brick dust, and annealing it. The tools used are punches, usually costing from 20 to 30 cents each. They are generally either *tracers* for outlining patterns or *mats* for grounding. The

sheet brass costs from 30 to 35 cents a pound in small quantities. The only full description of the art, both in cold hammering and by annealing, is, I believe, given in the *Manual of Repoussé Work*. Annealing consists in warming the work from time to time as it becomes hardened from hammering. It is easily done with a heater and tube from a gas light. It is all important in *repoussé* that the pupil before attempting to work patterns, should learn to make lines, curves, &c., very accurately with the tracer. Unless this is done, no good work will ever result. This work is, however, admirably useful as a preparation for all who intend at some future time to work in metal. Familiarity with the hammer, the punch, and stamps leads to a really practical knowledge of the properties of metal and how to turn them to advantage. There is, too, a growing demand for many hand made objects of beaten brass. Facings for fireplaces, finger plates for doors, bellows, panels for cabinets, picture or mirror frames, and a hundred other objects may be easily made by women and children. But let it be remembered that neither sheet brass nor any other kind of work is worth taking up unless it is preceded by a knowledge of design drawing and perfect skill in the use of the tracer. Without such preparation it at once degenerates, as china painting has done, into a frivolous fancy work. This work can also be elegantly executed in sheet iron, tin, pewter, copper, or silver.

PAINTING.

Painting in oil or water colors, for the majority, requires a special teacher. Yet when the inevitable design-drawing is really mastered, monochrome or single color presents no difficulty whatever to a person of ordinary intelligence, even without a master. And after monochrome I see no reason why, with a good manual, any one cannot gradually and carefully mix colors and experiment and test and copy his way without any real difficulty into skill. Those who write a letter to an editor to know what color would result from mixing blue with yellow would perhaps be too impatient to travel the only true road, which, seeming long, is yet the shortest. Painting, though the most popular branch among all pupils, because producing such pretty results, is the last to be thought of in an ordinary school. In proportion to the time, trouble, and expense which it involves, it is of less practical use than any of the minor arts. Yet in one branch it is easy and commendable. I refer to mural or purely decorative painting of walls and ceilings. Here flowers have their place and may be appropriately introduced. In a large experimental industrial art school painting will of course form a regular part of the branches.

ARTISTS' SUPPLIES.

In most cities there are dealers in artists' materials who will supply or obtain anything needful. Where these cannot be had, every bookseller will get for the applicant the *Art Manuals* or similar works,

and the publishers of these will always send to order what is wanted or answer a letter containing a postage stamp. I presume that the editor of any newspaper will be able to give the address of an advertising agent in New York or Philadelphia or other large city who will obtain what is wanted or hand the order to a general agent. The latter will always, being allowed a discount, obtain the article as cheaply for the consumer as he himself could do. Finally, the directors or teachers of the art schools or ladies' art clubs or associations of any of our cities would reply to any questions from any persons far inland. I myself have always made it a point to do so in the interest of education, and will always give information or counsel most willingly to all who wish to learn an art or to introduce industrial pursuits into schools, and who in addressing me will inclose a stamp for return postage.

IMPORTANCE OF FREE HAND.

It is much easier to learn to draw well than to write well, and there is no child that would not do both admirably if it were obliged from the first hour to use *free hand*; that is to say, to control the pen or pencil from the shoulder, allowing the arm to rest on the table just enough to prevent fatigue. The whole difficulty of drawing lies not, as is popularly and very ignorantly supposed, in composing and inventing figures, but in drawing simple lines. Now, let the teacher in every school, however humble, bear in mind this great truth, that if a child acquire true free hand in writing it can not only *draw* well, but do almost anything well which requires perfect control of the hand. This wonderful faculty enables the possessor to almost at once feel, as it were, the chief difficulty of wood-carving—the light, artistic touch—and to overcome it. So is it with all other arts. With this power they can all be literally mastered. The younger the pupil who acquires it, the sooner in life will he make it his own and the greater will be his manual skill in all things when older grown. There are very few teachers who fully realize this, few parents who ever think of it; yet it is the mainspring of all manual art. For the sake of this it would be worth while to make industrial art a part of the education of all children, the younger the better. Therefore, all who propose to teach or learn art in any form should seriously consider *free hand* as the true key to all its practice. It is a great stimulant to quickness of perception.

LARGER SCHOOLS.

I have, in what is previously written, considered the expediency of industrial art as a branch of education, and shown how it may be introduced to village or private schools. I have of course only considered the pupils, but it is worth remarking that the teachers themselves, "learning while instructing," will also become accomplished, and in many instances fit themselves for a more congenial career as artists or teachers of art. No one can doubt that if every teacher in America could practise one or more strictly industrial decorative arts of a more

practical nature than are now taught in schools, there would be an immense impetus given to our national culture and industry. There was very little really *solid* in old fashioned drawing, water color, theorems, wax flowers, and china flower plaques, but there is a great deal of real value in free hand design, and in executing it in wood, metal, leather, and all other suitable substances. Not only does the teacher find in decorative art a means of making more money, but he is also provided with what to all is an agreeable change from other duties; for, while teaching, the instructor, in common with the pupils, can produce something salable or valuable.

THE INTRODUCTION OF ART TRAINING.

Where it is proposed to introduce industrial art work to public schools in large cities or to whole communities, there will be either much opposition or great indifference to the innovation on the part of those who do not understand it. The best way to begin in such cases is to establish on a small scale a single primary school of from twenty to thirty pupils, to be taught design, embroidery and plain sewing, modelling in clay, and wood carving. This school may be supported by private contributions and the aid of ladies and gentlemen who will give time and teaching for nothing, as several have done in Philadelphia, or it may be entirely based on appropriations from school boards, or the latter source may be eked out by the former. When the school is established and well under way, all that is necessary to convince any rational man of its utility will be to have him inspect it while in session. If managed with any ability, it will speak for itself. The sight of the girls and boys proving to the most prejudiced their ability to make a living on leaving school, is all that is needed to make converts. The walls of the school may be decorated with specimens of work, but I do not urge the appeal to these as the sole proof of the expediency of teaching children to use their hands. As a rule without exception, it is the unreasoning and ignorant visitor who is amazed at plaques and panels made by children and who cries at every indication of what is or should be only *ordinary* talent, "How wonderful! Is not that child a genius? Has she not extraordinary talent?" The children themselves soon learn to laugh at this false estimate of their skill. They know that they can all do these things with practice. And, as I have previously said, the ignorant examiner, looking only at the *results* and considering only market values, immediately misunderstands the entire system. Thus newspapers have unthinkingly compared the results of the work done by little children who had had, many of them, only a dozen lessons or at most twenty, and that once a week, with that effected by grown-up young women who had been for years employed all day, and every day, in higher art schools. Yet even these children showed, in proportion to their age and opportunities, superiority in every respect to all rivals.

MATERIAL REQUIRED.

In an ordinary experimental school we first need a room. The upper story of a city school, when not in use, is perfectly adapted to the purpose. It should of course be well lighted. Tables made of two-inch plank, placed on very strong, firm trestles, are requisite, particularly if wood carving and brass work are contemplated. There must be abundant shelving for many purposes. The pupils will every one require a place whereon to put half finished work. There must of course be chairs and a blackboard. An adjacent small store-room or large closet will be a great convenience. If this be wanting a large plain wooden cabinet must be provided.

It may happen that the director or principal of an experimental school is capable of teaching not only drawing but modelling. In like manner the lady teacher of embroidery may be qualified to teach something else. In the smaller schools of course one teacher must supervise everything. In the smallest it will soon be found necessary to convert the most advanced pupils into assistants. Economies of teaching may be carried out in many ways. But where it can be done the director should have no direct teaching. There should be one instructor for every branch. There should consequently be teachers for drawing, carving, and modelling in clay. But in different localities and in large schools well supported many branches may be taught. I could easily enumerate fifty, large and small, all worth learning and all very easy to learn if the pupil can design. Thus *leather work* may be divided into several branches, all elegant and profitable. There is sewn leather, in which fragments of bookbinders' and shoemakers' waste are cut into shape and sewed together, as well as the two great divisions of sheet leather stamped and leather moulded into shapes. In Russia, Turkey, and Persia there are whole villages or large communes devoted to sewn leather work, and if really artistic patterns were supplied there would be many thousands of people in America doing the same.

With regard to what seems to be the only great and real difficulty in popularizing art and industrial art education, something may here be most appropriately said. This difficulty is that of getting patterns to guide taste. I long since suggested in published lectures that this might be met by either private charity or municipal or government aid. Sheets of patterns for every branch of the minor arts, costing not more than two cents a sheet, would be of incalculable value to every industry in which taste is required. From art works already published, from our museums and from those abroad, inexhaustible material could be taken. It should all be drawn from specimens illustrating and expressing some marked era of art. Very little should be made or drawn to order for these sheets, not even by the best artists. What is wanted is instruction and inspiration for artists, not from men but from eras of culture. When the demand makes itself felt our Government will doubtless sup-

ply it. It has been met in England in an inadequate way by publishing illustrated pamphlet summaries of the works in the South Kensington Museum. But what is wanted is simply large sheets with large outline designs of different kinds of art industry work. Let me illustrate this by a single instance. In many parts of America, boards, even of oak, walnut, or more valuable woods, are cheap enough, and men who can manage saws and planes are not wanting. These people are often without furniture and pay extravagant prices for the flimsy, worthless, ugly, glued together, and varnished trash of the factories. Now, there is a type and style of very elegant solid furniture, such as was made in South Germany for centuries, which would cost no more than the glued and veneered trash. It is made by simply sawing, boring, and pinning or bolting planks or boards together. Any man of ordinary intelligence having the design for a table or chair of this kind before him can take the measurements and make it. A series of such designs at a low price would be very welcome and very useful all through the West.

As I shall explain in another place, there are several useful industries which would soon be practised in thousands of families were cheap illustrations devoted to them disseminated everywhere. Such pictures would form a very important aid to industry in schools. I have done what I could to help in this respect by giving in the series of Art Manuals, which were written for education, large working patterns, those in any one of the works being adaptable to another. Thus a design for sheet brass may also be used for flat carving. It is to be regretted that in works of art half the engravings are executed not with a view to making them practically useful to workmen, but to give a general picturesque effect. There is a great deal of expensive shading, but the details are scumbled. This is the case even in many of the illustrations of the South Kensington works.

I will here recapitulate the possible or probable requirements of an experimental school on a large scale for a city :

- A large room, well lighted.
- From 30 to 50 feet of common pine shelving.
- One gas-burner to six pupils.
- Water, soap, and towels.
- One closet or cabinet (pine).
- One water-proof barrel or large box, for clay
- Clay, from 30 to 100 pounds.
- Modelling tools, one set.
- Carpenter's compasses.
- Chest of carpenter's tools
- Drawing boards.
- Drawing paper.
- Pencils.
- Cups or small tumblers.
- India rubber.
- Tiles, for colors.
- Foot rules.
- Compasses.

Water colors.
 Paint brushes.
 Blackboard.
 Wood carving tools for each pupil.
 Wood, half inch to inch, at from 4 to 10 cents a foot.
 One set of Art Work Manuals or other handbooks.
 Whetstones or hones.
 One grindstone.
 One bucket or pail.
 One fret sawing apparatus.
 Material for needlework for each pupil.
 Leather, from 25 cents to \$1 a skin, besides waste.
 Tools for leather work, each pupil.
 Stencil cutting, each pupil.
 Brass work, each pupil; tools, \$1; brass, \$1.
 Flour paste or dextrine.
 Plaster for moulds.

It will be seen that it is very difficult to adjust the prices for such a list, especially for all parts of the United States. For a small school or club on the humblest scale, drawing materials, two or three carving tools to each pupil, boards or wood (such as can be generally had for a trifle), waste newspapers, and common paste and clay for papier mâché with a little paint, bits of marble or stone of different kinds, and a hammer and iron bar for mosaic making, with rags for artistic rag-carpet work, and manuals will not, with management, cost in all more than from \$20 to \$30. A clever teacher with clever pupils could almost undertake to begin work on \$10 and increase the stock of implements by sales. If the teacher can only design, all the rest will or may follow of itself.

HOW TO SELECT WORK FOR PRACTICE.

It is extremely difficult to determine, beyond design-drawing, modelling, embroidery, and wood carving, exactly what may or may not be taken up. There are places about factories where the material for rag carpeting is very cheap; in others it is dear. This, as I shall show, supplies material for a really elegant and practically useful art. In others mosaic stones or marble may be had for the taking, while in certain places such material is not to be had. I have seen a bed of finest clay, ranging from white to red, in Minnesota, several miles in extent, not very far from Duluth. In the East such clay costs from 3 to 5 cents a pound. It will be seen by this that the prices of the materials and implements for industrial art work are very variable; but there is no place in which some of them are not within the reach of the poorest. Sculpturing brick is a beautiful and profitable art, not difficult to learn, and bricks are to be had everywhere.

There is one rule by which all such schools may be safely guided. Making money immediately should not be the main object of any branch

of education, but where schools are very poor a sufficient income to pay for tools and materials may be confidently relied on. Let the teacher, or those who are interested in the pupils, after they can design patterns, and not till then, consider what industries in their neighborhood will pay. In the first place, a stencilled wall is really, if well executed, better than a papered one. Elegant stencilling costs little more than that which is ugly. It should be found in every house in the country. Just at present it seems to be confined to the Fifth avenue or to the most expensive mansions. If brass or sheet metal work is taken up, fronts for fire places are easily made and can be sold, as also finger plates for doors, sconces, and frames. Leather work will supply baskets, chair seats, and coverings for the backs of chairs, table covers, and albums. Of sewn leather, cushions or pillows are extensively made in Turkey, Russia, and Persia. These can be made from bookbinders' waste. Elegant coverings for furniture, rugs, and slippers are also made of this now wasted material, which may be used for a great variety of purposes. Let it always be remembered that if the teacher and pupils set themselves resolutely to make certain objects well, according to what authority recommends as good patterns, they can always find some agency in every town where their work can be sold. But if they only produce average church fair work of the common flower plaque and dog's head school, it will not sell. The writer is in the constant receipt of letters from people in the country asking him where their small art work can be sold or even requesting him to kindly exert himself to sell it for them. Now there is always a market for anything worth having, but the only way to sell it is to find out by inquiry some honest agent or merchant in a city or town who will deal in art work, and trust to him. The ladies' decorative art associations in our large cities all sell such work, with a discount in their favor of about 10 per cent. It is to be advised that, in all cases where the pupils produce work of substantial merit, specimens adapted to house decoration—such as brass fronts and tiles for fire places, leather chair covers, and carved panels with squares of mosaic—be exhibited, not for sale, but as samples of work which will be executed to order.

I may here speak of a few minor arts which may be taken up according to opportunity. I cannot urge too strongly the fact that after design is learned every kind of material presents a subject for art work, and that every artist should be continually discovering new varieties of it. From modelling vases down to painting oyster shells, or making wampum beads with a drill, or turning the under shell of a terrapin into an old ivory menu, there is but *one art*, and there is money to be made out of it all, or at least skill to be acquired with amusement from its practice.

Rag carpets.—Sort the rag strings for carpeting according to color, and let them be woven up singly. Thus you may have one which is black or brown or blue. Take preferably a black for a beginning, and work a pattern by running white tape with a bodkin through the

threads. Sew this where needed. If Etruscan or Greek designs are followed, the result will be a rug or portière or hanging, cheap indeed, but, if properly made, elegant enough for the drawing room of a duchess. The simpler the colors the better, but a variety may be employed according to the subject. It is not generally understood that weaving is by no means a very difficult art, and that light and cheap looms can be made for ladies. In the East at the present day, the most exquisite weaving is done without looms, the threads being simply arranged between pins and drawn along, the pattern being worked or drawn in by hand.

Painted embroidery.—This is made by painting or stencilling patterns in water color or dyes on any suitable stuff. The flowers or arabesques are then simply outlined in woollen or silk. A manual of this work as well as one of rag carpet embroidery and other arts mentioned are in course of preparation.

Mosaic.—The stone cubes for this work are sold in New York, but at a very high price. They may be made with a little practice by anybody with a square hammer and an iron bar from almost any kind of marble or stone. They are from a fourth of an inch to a half inch square, set so as to form patterns in cement; they make not only a durable and elegant pavement, but also squares which may be used to cover walls or as panels in cabinets. For summer, mosaic floors are preferable to wood. They are specially suited to bath rooms. Cubes of earthenware, though far inferior to stone, may however be used for mosaic. They are easily made in moulds and may be baked or fired even by amateurs at a trifling expense.

Sculptured brick.—Any brick and mortar wall may be sculptured. It is a question whether after the relief is executed the mortar should be stained red to match with the bricks or whether all should be left in primitive material. Brick sculpture may be very elegantly executed on a small scale, from a single brick up to half a dozen. There is really no artistic reason why these should not be set in red mortar or cement. A single sculptured square set under each window of a house, or between the stories on the front, will change the whole façade and greatly improve it.

APPLICABILITY AND VALUE OF ART TRAINING.

It is a curious matter to reflect what may be done for an ordinary country house by a family who will devote their evenings to its improvement, with a few tools and cheap materials. In the first place, good planed plank or boards can, by pattern and measurement, be converted by most men or boys into solid and even elegant furniture. It will cost less when finished than is usually paid for machine made varnished and veneered rubbish. I have before me as I write two chairs, each 250 years old, as good as new. The chair back fits by a socket into the seat and is bolted beneath; the legs are simply stuck through holes, as in a three-legged stool, into the seat. The backs are

and the result is a very beautiful yet convenient piece of furniture. Tables, settees, and all kinds of furniture may be made on this plan. The floor of the cottage may be set in mosaic, at the expense of time, an iron bar, a hammer, and stone of different colors; or it may be inlaid in wood and covered with rag carpets in Etruscan or Greek pattern—all home made. The walls may be covered with stencilled designs, or ornamented with carved panels at intervals, or strips or panels of stamped leather in old Spanish patterns, touched with gold. The doors may be hung with rag carpet portières, or cheap materials, such as crash towelling, dye painted and outlined with embroidery. The ceiling may be stencilled or adorned with papier mâché mouldings.

There are many people who say, as many have said to me, "What is the use or sense of inducing a backwoods dweller in a log cabin or shanty to adorn his house in a manner which he can neither understand nor enjoy? There are others who continually cry that educating girls up to æsthetic tastes unfits them for "mechanics' wives." This has been the old cry in one form or another in all ages. It was heard everywhere a century ago, as it may still be heard occasionally from a few "aristocrats," that reading and writing are the ruin of "the lower orders." There is a gentleman in Philadelphia who has always maintained that our civil war, which he regarded simply as a needless nuisance because it inconvenienced him, "all came from educating the common people so that they could read the newspapers." Industrial art is rapidly becoming, in education and in life, as essential as reading or writing. Thousands who are absorbed in politics, whiskey, or business are as yet ignorant of this; even some editors seem to ignore it; but the women, the clergy, and the teachers are already generally aware of it. But all the people in America do not live in backwoods shanties, and where they do they are not on that account to be universally set down as incapable of appreciating homes made beautiful. There are millions of people in America, not so badly off, whose homes, in which much money has been spent, are not really creditable, good looking, nor comfortable. They would all have tasteful or artistic and cheap adornment if they could get it. The money which they pay for their present ornamentations represents just so much labor. Now, this labor would be better bestowed on making for themselves what they want, or, in other words, in keeping the profits which at present simply go to enrich the manufacturers of machinery made and very trashy and ugly objects. The problem of political economy lies in the greatest possible distribution of wealth and industry.

There is another argument in favor of industrial art education. It is the enormous and rapidly growing demand for hand made objects. As education and culture progress, people begin to find out that in jewellery as in pictures, or even in fire irons, a thing to be truly artistic must be hand made. It is not as yet generally understood that machinery, though it may manufacture pretty things, cannot make

anything *artistic*. There are no such things as artistic works made in any way except by hand. Only the vulgar and ignorant confuse or confound that which is beautiful with what is artistic. The merchant is guilty of an illiterate blunder who advertises as "artistic" goods turned out by the million from moulds. It is more correct to speak of a pair of well made and handsome trousers as artistic than of a chromo-lithograph as such. This demand for hand made art will ere long give employment to that very large class whom it is at present difficult to fit to anything. The day is not distant when the public will be so well educated as to distinguish clearly between hand made and machinery made in everything pertaining to ornament. When that time comes we shall be a nation not only of artists but of mutual purchasers of art work. Meanwhile let it be distinctly understood that art does not consist entirely in prettiness. Its best characteristic is the impression of individual character. This disappears in the machine. In fact, the more perfect machine work is the less is it artistic. The faultlessly finished piece of silver work, such as no mere smith could ever rival, shows indeed the result of ingenuity but not of art. A Soudan bracelet made with a stone and a nail is far more artistic than a Connecticut mill manufactured dollar bangle, yet the latter is infinitely the more "finished" of the two.

As for the argument that girls are unfitted for becoming mechanics' wives by a knowledge of art, it is like the hackneyed cry against the piano and against all kinds of education or culture for the poor. The best arbiters in this question would be the young mechanics themselves, especially those who have been at art schools. Much as has been said against the piano, the mechanic himself is generally the first to make his wife a present of one, and I doubt if he would object to arts which are practised at home and which bring money in. There is much cheap ridicule of dados and what is misrepresented as being the staple of all decorative art work, but the truth is—and it is to be desired that all newspaper wits would admit it—that the fancy work of the last generation is gradually assuming a substantial and valuable form. The "China craze," as it is called, was at any rate better than potichomania or wax fruit work. The arts of which I have spoken deal with something more "practical" than plaques.

ART INSTRUCTION IN ITS RELATIONS TO THE TRADES.

I cannot set forth too strongly the fact that decorative art is to be taught to children and girls simply because it is better adapted to their age or nature than a trade or mechanical pursuits, and that whenever it is possible the pupils should be put into practical work. Thus when boys or even girls manifest an aptness or a fitness for it they may be taught simple carpentry or joining, turning, or any of the trades, if there be an opportunity to do so and they can learn. It requires many thousands of dollars to establish an industrial school, but industrial art

may be taught from the infants' school or Kindergarten upward. Let it, however, be borne in mind that industrial art, especially as regards boys, is really only a training for a trade, and that far from giving them a distaste for useful work it only whets the appetite.

I was one of the first, if not the first, to point out in a lecture a fact which has since been reëchoed by others, that the decay of the apprentice system must very soon lead to industrial education in schools. Machinery is making men into machines at such a rate that humanity is becoming seriously alarmed at the inevitable result. The old apprentice had a chance to rise, since he learned a whole trade; the modern workman, who is kept at making the sixtieth part of a shoe, and at nothing else, by a master whom he never sees, is becoming a mere serf to capital. Even the industrial school with its "practical" work can do nothing against this onward and terrible march of utilitaria. It is in the teaching of art and of the superiority of hand work in all that constitutes taste that the remedy will be found. By and by, when culture shall have advanced—as it will—there will be an adjustment of interests. Machinery will supply mere physical comforts. Man, and not machinery, will minister to taste and refinement.

According to the method and means which I have indicated, industrial art work may be acquired and taught by any one who will first of all learn simple decorative design. From this point, I consider that the several minor arts, also described in the works already referred to, may be easily comprehended, mastered, and taught. But, in fact, the one who can design and model has the capacity to master the rudiments of any of these arts, since they all constitute substantially one art. I have also shown how the system of instruction may be extended to large preparatory schools in cities.

ADMISSION TO THE PHILADELPHIA SCHOOL.

A word may here be said as to the method or system by which the pupils are taken into the Philadelphia school. Every teacher in the public schools selects one or two scholars. These are divided into two classes, one attending on Tuesdays from 3 to 5, the other on Thursdays at the same hours. When the pupils can make a fair original design they are advanced to another class, either to paint, model, carve, or learn embroidery. The pupils are, without exception, fond of their work, and would willingly come oftener if possible. In some cases, as a reward, proficienta are permitted to attend twice a week. In a few weeks all who advance beyond design produce work which has a market value.

III.—GENERAL OBSERVATIONS.

EQUALITY OF THE SEXES IN ARTISTIC CAPACITY.

It may interest the reader to know that in design drawing there is no difference as regards merit or capacity between the sexes. In *brass*

work boys excel, not because it requires more strength, for it does not, and the gentlest worker who makes least exertion does best, but because women and girls will not take so much pains to learn to work a line well with a tracer before proceeding to make what they are confident will be salable and beautiful productions. In wood carving the sexes are more nearly equal, with an advantage, however, in favor of the male. In modelling the equality is almost reëstablished. Teachers who have had much experience in Europe all declare that American girls or grown women, while clever, are the most difficult to teach, owing to their impatience. As a rule, when not under restraint, they have not the patience to learn to design, but are eager to take up at once one or several arts, hoping to beg, buy, or borrow patterns, as luck may provide. Those who do proceed by the right road of drawing learn rapidly and do well.

MISAPPREHENSION OF "ART" AN OBSTACLE TO INDUSTRIAL EDUCATION.

The most serious obstacle with which industrial art has to contend is the extravagant and inflated ideas which are popularly attached to the word *art*. It has been so long identified with pictures and statues that in every newspaper, under the heading of "The Fine Arts," nothing but news of pictures and statues is expected. Now, as not one person in scores can accurately distinguish a good picture from a bad one and as the kind of art knowledge which is current sets itself forth in a vast vocabulary of cant, it is not remarkable that "art" has become a terror. There are men in high places who profess to be authorities, who declare that "art" is something for only the very few to rightly understand, and that it requires a special inspiration and much education to appreciate it. When every one, rich or poor, shall know what design is, though it be only simply decorative, and has become familiar with a tastefully ornamented house, however humble, then art in its highest, purest, and noblest sense will have no mystery for any one. It is most unfortunately true that, while taste, learning, and culture are spreading rapidly, there has been so far no rational or common-sensible effort to really teach the poor and ignorant anything of the kind. There is a great deal of writing about the ennobling tendencies of art, but there have been as yet very few efforts to really go down to the basis and make a proper beginning. The dilettanti and cognoscenti, and of late years the æsthetes, have all preached in their time and way the glory of Raphael or Michael Angelo, and how desirable it would be to bring a knowledge of them down to the people. But they have never tried bringing the people up to Raphael. Now, Raphael and Michael Angelo sprung from the people in an age when every object was made with decorative art. And when this shall be the case with us, we shall have Raphaels again, and not till then. There never was a real art in the world that did not spring from the people, that was not fully shared in by the people, and that did not belong to the people. If there were to-day as much knowledge of and fondness for design as there seems to have been among the prehistoric

savages of Europe, we should in a few years raise our manufactures of every kind to preëminence, and with them improve ourselves personally, morally, and socially.¹

There is a great coming revival of culture and of art, but it will not be with us until we teach its principles to every child in every school. There is an instinct in mankind for decoration, for color, for manifestations of what is beautiful. It has been starved out temporarily by the practical developments of science or by the useful. This was well; but while comfort should be paramount there is no need of suppressing taste. Those who talk about the sunflower mania and "art craze" as something temporary, and who mistake the æsthetes for the main army yet to come, are like the ambassadors sent by an African king to visit London and who at the first small Arab village thought themselves at the end of their journey. As yet the *people* have not moved. A writer in "a Cincinnati journal," I know not who, has wisely said that "because some people have blue jugs and one gentleman an art gallery, therefore we are a great artistic people. But where are the works of our united citizens? What have the masses of our people done?"

What the masses of our people can do will be first shown when every one of them shall have been taught, first, decorative design, and then one or more minor arts. This design will be simple, and deal merely with outline and mere ornament at first. This is the only easy and proper preparation for more advanced drawing, be it practical or technological or for prospective picture making. Hitherto all elementary drawing has been either misdirected either in copying shaded pictures or, what is little better, in stiff and formal "systems." When all can design and all know something about decorative art the mystery will depart and the world feel less awed before old masters and modern gothic churches; neither will it believe that a pile of building is necessarily beautiful because it cost fifteen million dollars.

MORAL EFFECTS OF ART INSTRUCTION.

I cannot urge too earnestly or too often on clergymen, as on parents, the fact that an interesting industry is conducive to moral culture. Boys who are really absorbed in some kind of industrious amusement

¹ Mr. William Morris, the eminent poet and artist, speaks to the same effect in his recent address at the opening of a fine art and industrial exhibition at Manchester, England:

In truth, these decorative arts, when they are genuine, real from the root up, have one claim to be considered serious matters which even the greater works do in a way lack, and this claim is that they are the direct expression of the thoughts and aspirations of the mass of the people; and I assert that the higher class of artist, the individual artist—he whose work is, as it were, a work in itself—cannot live healthily and happily without the lower kind of art—if we must call it lower—the kind which we may think of as coöperative art, and which, when it is genuine, gives your great man, be he never so great, the peaceful and beautiful surroundings and the sympathetic audience which he justly thinks he has a right to.

are kept out of much mischief. The world, unfortunately, while it observes those who are always in mischief, takes no note of those who are kept out of it. How much the more, therefore, is art industry in schools to be commended, since it not only keeps children busy as an amusement, but aids them practically as to future callings. Year by year sees the old bugbear fading away, the demon of our childhood, which taught that as all medicines to be effective must needs be nauseous so all school study must needs be wearisome and painful. I am sure that industrial art will go far to make children love school. In England rural clergymen and their wives soon saw into this, and Mrs. Jebb, of Ellesmere, was the first to establish village art schools. But if it be advisable from moral grounds to teach children some way to employ their leisure pleasantly, what shall we say of the immense number of the older grown who rush into vice, impelled by the sheer ennui of idleness? Here is an immense number of girls knowing nothing but a little plain sewing, or, in the higher grades, a little piano playing. They cannot all get places in shops or factories, and if they do many of them break down. When a rainy day comes there is suffering indeed. At such a time almost any fancy work, however trifling, often intervenes to save them from ruin. There are now many thousands of young women in America who owe the real comfort, or what constitutes the enjoyment, of life to the teaching or making what is in itself almost worthless, to feeble cards and washy plaques and wretched drawing and daubing; yet it saves them. How much better would it be if they understood design and the decorative arts, which are not more difficult and which are far more certain to command a market?

There is another class of young people, mostly female, who, having taken the first step in vice, linger awhile before the second, and then are rapidly and utterly degraded. If we look through the ranks of the uneducated, half educated, or even so-called educated young women, how many are there who have any resources to fill up their leisure? Is it a wonder that they gossip, and thereby develop the sociable evil, who makes even more mischief than her humbler sister, the social evil? I do not think that among the best educated there is one in ten who has any handwork or resource, artistic or literary, in which she really delights. It is the same with the men. Hence "politics," gossip, and the most frivolous waste of time. The clergy know this, and they would welcome any remedy for it. When I recently published in *The Messenger* an appeal to them to aid in introducing art into schools on moral grounds, I began at once to receive, as I still do, letters from clergymen all over the country in reference to the subject. It is a fact that when a girl once masters an art she generally remains true to it and makes the most of it. Its practice gives a certain sense of superiority and of self reliance which goes far to strengthen morals in the truest sense of the word.

INDUSTRIAL ART AS AN ECONOMIC FACTOR.

There is not one person living, having the usual command of brain and hands, who cannot learn to design well in simply decorative drawing in a few weeks, or, in extremest cases, in a few months, if he or she will try to acquire it. There is not one person who can execute simple design who cannot also master one or more minor arts. And finally there is no youth of either sex who understands one minor art who cannot make a living by it or by teaching it. By mastering an art I do not mean the ability to feebly copy a wreath of flowers on a china plate or to indifferently hammer on a brass plaque a borrowed pattern. As it is within the power of all to learn design, so it is quite as easy to perfect themselves in these arts, without a master. All that they require is will and industrious application. This is not mere theory. It has been proved in millions of instances. The history of whole countries, nations, and eras has proved it. I will give the examples:

In the East from remote times, during the days of Greece and Rome and through the European Middle Ages, the conditions of life were such that but for hand made minor art the number of paupers would have been literally overpowering. Nothing produces idlers and beggars so much as aristocracy or an extravagant and wealthy court and nobility, and society was then entirely aristocratic. Yet there were fewer paupers then than there are now, if by paupers we mean the entirely dependent. To-day in the United States they wear good clothes and seem well off, but they depend on somebody. There have been states of society in which the producer was more cruelly taxed, but none in which he supported so many. It is very creditable to the average mechanic of the United States that he spends twice or thrice as much on his family as does his British brother, but it is very discreditable to his family that they take so much. Now, if there were such a demand for hand made decoration in this country as there was, let us say, in Europe five hundred years ago, if every home, however small, were properly adorned, all in the country who are willing to work would find employment. It is a curious reflection that even in the time of Elizabeth the "sitting room" of Anne Hathaway's cottage was far more beautiful than any drawing room in modern Philadelphia, for it was entirely lined with old carved oak. This was the home of people who were then called poor. The demand for hand made decoration is coming very rapidly. When it comes, when people learn the truth that a thing is not artistic *because* it is beautiful, there will be a vast field thrown open not only to the poor, but to the poor who are neither very clever nor strong. In any case it is always worth while to have some art which one can always teach for money or by which one can live. How many poor young people, with spare time, spending all they earn for living, would be really happy when holidays approach if they had a few dollars more? And how certainly they could depend on earning them if they

could embroider, model, and ornament, or color and glaze vases, carve panels, or work in leather? It is hardly possible to suppose that any one who could do all this need be very poor. Yet all these arts, and many more, are actually within the reach of all who choose to master them.

I have shown that the expenses of designing and modelling amount to so little that they may be introduced to the poorest country school. I find that embroidery is often made to cost more than it should. The wool for crewel, at five cents a skein, crash, or common gray stuff of several kinds costs very little. Scraps of velvet, cloth, and ribbon, for appliqué work, are expensive or the contrary, as people are careful in collecting. A class may be well taught in design, chiefly with the blackboard alone; beyond this, good wrapping or shop paper and lead pencils at a cent apiece are not hard to obtain. No rule can be laid down as to selling work. The pupil should not try to sell anything until it is really well made. Unfortunately the delight of the amateur at his own work is always such that his first or at least second or third attempt always seems to him to be very valuable, and there are always ignorant friends who are of the same opinion. What has degraded china painting is the enormous production of it by women who knew nothing of design, and who were accordingly destitute of the energy and character which spring from originality.

OBJECTIONS CONSIDERED.

I have found that a great deal of the opposition or indifference to art industry in schools comes from men who, because they are themselves ignorant, do not like to have the whole world trained to what they are too idle or stupid to master. Others argue that as their children are not intended for pursuits into which art knowledge enters therefore no children need or ought to learn anything of the kind. In the face of these and many other equally wise objections, such as are generally urged at meetings where the subject is discussed, the facts remain that art industry can be taught without infringing on other branches of education; that children while at school can learn to design and model so well in a few months with one weekly lesson as to readily obtain a place as underdesigners in factories; and that, thirdly, they can even produce wares which will sell. They can, at the same time, acquire more culture and intelligence than the objectors to the system can appreciate, but which is appreciated by all persons who are themselves really well informed or intelligent. On this point I speak with knowledge from experience. I have observed that my pupils, from the time they ceased to be mere copyists, began to observe many things to which they were previously indifferent, and manifested the awakening of a much higher intelligence.

But there is a final argument which cannot be resisted; it is that there is a tremendous demand among the manufacturers of Europe and of this

country for decorative artists and artisans. It was thought in England that the great art schools of South Kensington and Manchester and such places would afford a supply, but it has been as a drop in the bucket. The industrial schools have been as inadequate. For it is not only a supply of artistic goods that is needed, but also a taste for them, a manufactory and a market as well as a greater demand, and to meet this double want there must be extensive radical art education among the people. The highest statesmen in Europe know this, and the saying of the Prince of Wales, cited in a late article in the *Nineteenth Century*, that learning and earning should go together, indicates the solution of a great problem by a brief rhyme. True, there are millions who do not see this. The year before gas was introduced into Philadelphia all her most influential citizens signed a protest against lighting the city in any such abominable way. The light which gas casts is trifling compared to the enlightenment which would result from the reform in education of which I speak, yet there are still many in that very city who ridicule the idea of industrial art in schools.

From time to time the world comes to a period when it discovers all at once, like a hungry somnambulist awaking in a room full of smoking charcoal, that it is both starving and strangling. It cries now that in education we are starving for fresh knowledge and are being stifled with old methods. People are beginning to think there must be some shorter and more practical cut to drawing than all the old road, with its blocks, perspective, diagrams, and geometry, ever indicated. These are all good in their way, but there is no practical easy introduction to the art. There is a growing belief that all study may be made easier. There may be no "royal road" to mathematics, but that is no reason why the way to everything should be over corduroy planks and break-neck rocks. There must be work to win art or learning, but work need not be offensive.

There is a final plea to be offered for the introduction of industrial art into all schools. It is that by making *hand work* a part of every child's education we shall destroy the vulgar prejudice against work as being itself vulgar. This we greatly need, for there is no country in the world where manual work is practically in so little respect or where there are so many trying to get above it as in this American republic. We have had those who proclaimed that work is only fit for negroes or mudsills. As it is, the native born citizen all too eagerly flies to any occupation in which, by wearing a black coat all day and keeping his hands soft, he makes one move nearer to being "a gentleman." It is only in my native land that I ever heard a man gravely boast, as a proof of his social superiority, that he had never done "a day's work" in his life. While there are a few superior to this snobbishness, there are still millions who are practically enslaved by it. It arises from the fact that work—hand work—is not as yet sufficiently identified with education and culture. Now, industrial art in schools, based on design

and associated with studies, will go very far to make manual labor "respectable" in the eyes of those professing democrats who pant for aristocracy as the hart for the water brooks. The minor arts are as much associated as the fine arts with all that pertains to the very cream of culture. To know them at all is to know in time the names and works of Benvenuto Cellini, Albrecht Dürer, in a word, of all the great men whose names and works cast the highest splendor on splendid ages. The boy or girl who has gone even but a little way into industrial art visits the great museums and collections of this country or of Europe with a hundred times more real knowledge and appreciation of their magnificence than can the amateur who has only *read*, though it be "never so wisely." No boy or girl learns to design, model, and carve, inlay and embroider, without in time reading with keenest interest Owen Jones, Labarthe, Fergusson, Whewell, and Dresser, with many more such writers. And with such practical knowledge and reading every object of taste and almost every book reveal beauties and awaken associations such as the many envy and the few possess; for the one who has worked in industrial art understands and feels decoration and beauty as no mere reader can. I once read through all that I could get on wood engraving, but two days' work at a block taught me more than a library on the subject could have done. For of all learning since books were invented there was never aught like experience, and of all experience there is none like one's own.

It should be remembered that industrial art may not only be taught in schools, but also form the subject or principle of a club, a society, or a private class, or be practised by a family or an individual. There should be indeed a ladies' industrial art association in every village. It will promote culture; it will or should lead to much reading of history and its social developments, and it will be a source of pecuniary profit.

It is to be supposed that in most instances these private societies will aid the local schools by teaching and by joint sales. Where even two or three unite for such a purpose they will find that mutual aid and consultation are quite equivalent to a teacher. Last, not least, I can assure them that the work is fascinating or agreeable to a degree which none can realize who has not attempted it. When asked what was most remarkable in the ladies' art club of which I am president, I replied, "The love of the students for their work."

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CIRCULARS OF INFORMATION

OF THE

BUREAU OF EDUCATION.

No. 5-1882.

MATERNAL SCHOOLS IN FRANCE.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1882.

LETTER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., December 4, 1882.

SIR: The legal school age in most of our public school systems begins at the sixth year; in all our cities a very large share of child life below that age is outside of school influences and often destitute of the training that orderly family life bestows. This condition is a dangerous one for the exposed children and ultimately for the communities in which they live, and educators and philanthropists are thinking much about what should be done.

The same question in France has been considered with great seriousness, and some important results of this study will be found in the accompanying paper on maternal schools, which I have the honor to recommend for publication as a circular of information.

Very respectfully, your obedient servant,

JOHN EATON,
Commissioner.

The Hon. the SECRETARY OF THE INTERIOR.

Publication approved.

H. M. TELLER,
Secretary.

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MATERNAL SCHOOLS IN FRANCE.

The term "*école maternelle*," which is here translated literally, is the French equivalent of the German "*Mutterschule*," which has been used to signify the care and education of young children by the mother until their sixth or seventh year. Comenius, also, in the "*Schola Infantia*," uses the same expression in a discussion of the length of time to be allowed children in the "*materna schola*," that is, in the mother's charge, before sending them to the public schools, and he sets the limit at six years. He furthermore lays down precepts in that treatise for the guidance of mothers and others who have charge of children during their earliest years which resemble very closely the substance of the modern programmes arranged for the same purpose. This idea of the combined protection and instruction which are ordinarily afforded children by their parents is transferred in the expression "*maternal schools*" to those institutions which have been established for children who do not have the advantages of the proper attention of their natural protectors. As far as education is concerned, these institutions have the same object in view with judicious parents, use methods of instruction similar to theirs, and are intended to be, as far as possible, a substitute for them in practical effect. "*Maternal schools*," therefore, are not schools in the ordinary sense of the word, but, as their name implies, establishments designed to take charge of young children before they are old enough to enter the primary schools. They were originally intended as places of shelter (*salles d'asile*), where the very young children of the laboring classes could be taken care of in the absence of their parents during the day, and this name is used as synonymous with the more expressive *école maternelle*.

ORIGIN AND GROWTH OF MATERNAL SCHOOLS.

The origin of schools of this character in France may be referred back to 1771, when Oberlin founded the schools which afterwards became so famous, but the institution did not take root until 1826. In that year a committee of charitable ladies, one of whom was Mme. Millet, established the first *salle d'asile* in Paris in a place belonging to the Hospice des Ménages, where they brought together eighty children. The establishment was supported by the general management of asylums. The idea was a fruitful one, and only needed judicious regulation in its practical application. A successful effort was made in this direction by M. Cochin, who established the first model *salle d'asile*, to which, as an ac-

knowledge of his labors, his name was officially given by an ordinance of March 22, 1831. Soon afterwards the institution was taken from the class of charitable establishments, to which it had belonged, and was made a part of the system of national educational institutions. This was effected by the ordinance of December 22, 1837; nearly twenty years later, the decree of March 21, 1855, and the regulation of the 22d of March, 1855, established the programme of instruction and indicated the character of the method under which the schools were to be conducted. Some idea of the recent growth of the institution is given by the following figures. The number of schools of this character in 1879 was 4,446, which increased to 4,665 in 1880. There were 7,169 directresses or subdirectresses in the latter year, of whom 5,478 belonged to religious bodies. The schools, which are divided into public and private, received together 606,014 children, 467,533 of whom were taken into the public and 138,481 into the private institutions. The public schools (both lay and sectarian) had an attendance of 50,630 paying children, and the private 48,844, so that 506,540 children were admitted gratis. The character of these schools has changed somewhat during the last few years, so that changes have been necessary in the corps of teachers and in other respects. The increase of scholars and paucity of teachers have led the government to make regulations effecting an improved organization of the system and providing an efficient inspection and direction of the schools and a systematic course of instruction. The directresses and teachers are trained for their work in special normal schools adapted to the purpose.¹ Special instructions have also been issued for the construction of suitable buildings for the use of these schools, the sanitary precautions being modified to meet the needs of the young inmates. A translation of these instructions will be found at page 12.

The decree of July 27, 1882, reads as follows :

ART. 1. The Pape-Carpantier school shall henceforth be devoted to preparing directresses and professors for the normal courses of maternal schools established in the different academies (educational districts) either as independent establishments or as annexes to the normal school for female teachers.

ART. 2. The education in this school shall be free. Entrance is to be obtained by competitive examination. The school will be supported by State funds, by the departments, by the communes, or by private individuals.

ART. 3. Candidates for admission must fulfil the following conditions :

(1) They must be between twenty and thirty years of age at the date of application (suitable allowances will be made in this respect); no applicant shall be allowed to present herself for examination more than three times.

(2) They must be provided with certificates of qualification for the management of maternal schools, together with a superior or elementary diploma.

(3) They must have agreed to devote themselves to teaching for ten years.

ART. 4. The examination for admission will embrace three divisions :

(1) *Written examinations* (under the supervision of the inspector of the academy), viz: (a) A composition upon some subject taken from the programme of maternal schools. (b) A composition upon some question as to the method of instruction of very

ORGANIZATION AND OBJECTS OF MATERNAL SCHOOLS.

The following pages contain the substance of the regulations of the superior council of public instruction respecting the organization of maternal schools.

No public maternal school shall receive more than 150 children without special authority. The children are to be divided into two sections (according to age), with a further subdivision into groups if the number of scholars requires it, each group being under the charge of one of the mistresses of the school.

The object of the different courses of the maternal school, as defined by the decree of August 2, 1881, is to commence the physical, intellectual, and moral education of young children; or, in the words of the decree, to give to children under the school age "the care and attention which their physical, intellectual, and moral development requires," and prepare them to receive instruction in primary schools.

The maternal school is not a school in the ordinary sense of the word. It forms the transition from the family to the school. It preserves the affectionate and indulgent gentleness of the family, while initiating the children into the habits of work and regularity of the school. A teacher's success in such a school is not to be judged, therefore, by the quantity of information communicated to the pupils, but by the amount of good influences which the children show they are subject to, by the pleasure they take in the school, and by the habits of order, neatness, politeness, attention, obedience, and the intellectual activity they have acquired. Consequently, the directresses of these schools ought to endeavor to furnish the primary schools with children well prepared to be instructed rather than with pupils already somewhat advanced in education. All the exercises of the maternal school are conducted on this

young children. Three hours will be allowed for each composition. The texts will be sent by the central administration; the work will be corrected and the question of admissibility decided by a commission holding its sessions in Paris.

(2) *Oral examinations*, consisting of questions and answers; reading, with explanations, and the correction of the work of a pupil teacher.

(3) *Practical examinations*, consisting of lessons given in a maternal school or a class of young children.

ART. 5. Every applicant admitted to the Fontenay school after competitive examination may elect the Pape-Carpantier school and be admitted without further examination.

ART. 6. The course of study at the school shall be one year, at the close of which there shall be a graduation examination which all the pupils shall attend.

ART. 7. The programme of instruction of the school shall embrace—

(1) A course of psychology and morals applied to education, and a course of historical criticism of the doctrines of pedagogics, especially those concerning the education of very young children.

(2) Courses of instruction on the different subjects taught in the normal courses of maternal schools.

(3) Lectures and practical exercises both in the school itself and in maternal schools.

(4) Information on the legislation for and management of maternal schools.

principle. They aim at the development of the different faculties of the children without fatiguing them, without constraint, and without excess of application. The end it is desired to attain—keeping in mind the diversities of temperament in children, the precocity of some and the dulness of others—is not to make them all reach a given degree of skill in reading, writing, and arithmetic, but to make them know thoroughly the little they do know, and lead them to become fond of their tasks and plays, and especially to keep them from feeling a distaste for those earliest school exercises which so soon become repulsive unless great patience, skill, and tact on the part of the mistress succeed in making them attractive.

The effects upon a child who has passed his earliest years at a maternal school should be sound health; hearing, sight, and touch already somewhat trained by a graded series of the plays, games, and little experiments which are calculated to educate the senses; clear, although infantile, ideas of the rudiments of what will subsequently be the subjects of primary instruction; the beginnings of habits and dispositions favorable to future education; a taste for gymnastics, for singing, and for drawing; an eagerness to listen, observe, question, and answer; the power of attention; a generally quickened intelligence and a mind open to receive good moral influences. With such a preparation, a few pages more or less of the spelling book are of little consequence.

COURSE OF STUDY.

The method of instruction adopted in maternal schools is in accordance with the above principles, and, as the name implies, consists in imitating as closely as possible the process of education adopted by an intelligent and devoted mother. Since it is not proposed in such schools to develop or exercise one order of faculties to the detriment of others, but to develop all harmoniously, no method of instruction destined to a special end is followed, but the simplest exercises are taken from different special courses, in order to form a course of instruction suited to the divers needs of small children and calculated to bring all their faculties into play. The exercises are varied and comprise object lessons, familiar talks, singing, the first attempts at drawing, reading, arithmetic, &c., together with bodily exercise, plays and games of all kinds, and simple gymnastics. The following extract from the plan of the course will serve as an illustration of the mode and character of the instruction:

FIRST PRINCIPLES OF MORAL EDUCATION.

*Section of small children (children of 2 to 5 years).—*Attention given to teaching the children good habits, winning their affection, and preventing quarrelling among them. First ideas of right and wrong.

*Section of children from 5 to 7 years, or infant class.—*Simple familiar talks during all the exercises and recreations of the class. Short poems for children explained and committed to memory. Short stories with a moral related to the children, followed

by questions designed to bring out the points and show if they have been understood. Children's songs.

Great care is meanwhile given by the mistress to correct any bad tendencies in the children.

OBJECT LESSONS—COMMON THINGS, FIRST IDEAS OF NATURAL HISTORY.

Section of small children (2 to 5 years).—Names of the principal parts of the human body; of the principal animals of the district; of the plants which serve for food or are commonly seen by the children (such as trees in the court or by the roadside, familiar flowers, &c.).

Names and uses of things which the children are in the habit of seeing (clothing, things about the house, articles of food, &c.).

Study of colors and forms by means of playthings; ideas about day and night; observations upon the duration of time (hour, day, week); the name of the day, of the previous day, of the following day. The child's age.

The attention of the children is directed to the differences between warmth and cold, rainy and pleasant weather; observations on the season of the year, the labors which belong to it, its productions.

First training of the senses by brief experimental exercises, such as comparison and distinction of colors and shades of colors; of forms; of lengths; of weights; of temperatures; of sounds; of odors and tastes.

Section of children from 5 to 7 years.—Elementary ideas of the human body; hygienic advice in small things; elementary comparative study of the animals, plants, stones, and metals which the children know; of a few plants used for food; and of some of the stones and metals of common use.

Air and water (steam, clouds, rain, snow, ice). Brief object lessons, always with the objects before the eyes and in the hands of the children. Exercises and familiar talks to teach the children the first elements of common knowledge (such as symmetry, left and right, names of the days and seasons, distinction between animal, vegetable, and mineral, the seasons, &c.), and particularly to lead them to observe, compare, question, and remember.

Other subjects, such as drawing, reading and writing, and rudimentary arithmetic, are taught in a similar familiar way with cubes, balls, rods, and other objects before the children and in their hands.

These object lessons, drawing, arithmetic, plays, &c., should be combined as much as possible, so as to bear on the same object in different ways and make the impression on the minds of the children more durable. Moreover, the order of the lessons is regulated, to some extent, by the seasons in which these are given. For example, the objects used or produced during a given month are made the subjects of the talks and exercises for that month. The following extract from the programme will serve as an illustration:

OCTOBER.

Object lesson.—Stories, talks, questions, with the objects shown to the children as far as possible. The vintage: Vine, grapes, wine, vat, cask, bottle, glass, corks, litre, cider, hops, beer.

Drawing.—Drawing in outline, made on a blackboard by the mistress; only those drawings to be copied by the children which are simple and easy enough to be included in the little drawing course prescribed by the programme. A grape, a grape leaf, press, vat, cask, bottle, glass, funnel, litre.

Songs and plays.—Autumn, by Delbruck. Play, The Cooper.

DECEMBER.

Object lesson.—Heating: Cold, snow, ice, avalanches; Switzerland; the Alps; skates, sleds; thermometers; stove, fireplace; wood, charcoal, matches; chilblains, colds. The hearth; the family.

Drawing.—Skate, sled, thermometer, stove, fireplace, bellows, shovel, tongs, fire engine.

Songs and plays.—The Little Chimney Sweep, by Mme. Pape-Carpentier. The Fire, by Delbruck.

APRIL.

Object lesson.—Vegetation: Grains, roots, stem, flowers, &c. Insects: Cockchafers, caterpillars, silk worms. Birds' nests. Usefulness of birds. Swallows.

Drawing.—Flowers, leaves, beans, peas, potatoes.

Songs and plays.—Spring, by Delbruck; The Silk Worm, by Mme. Pape-Carpentier.

SCHOOL BUILDINGS.

The following special instructions for the construction of buildings for the maternal schools have been adopted by the committee on school buildings:

SPECIAL INSTRUCTIONS.

The maternal school building comprises (1) a vestibule, which serves as a waiting room for the parents; (2) one or two school rooms, in accordance with the provisions of the decree of August 2, 1881; (3) a covered and inclosed courtyard; (4) a kitchen for preparing or warming the children's food; (5) a court for recreation, or playground with a small garden attached; (6) a place screened off, provided with privies and urinals for the children; (7) accommodations for the directress and for the subdirectress, if there is room.

1. *General conditions.*

ARTICLE 1. The locality destined for a maternal school should be central, with plenty of free air, easy of access, at a distance from any noisy, unhealthy, or dangerous manufacturing or other establishment, and at least 100 metres (about 110 yards) from any cemetery.

If the ground is moist it must be drained. The superficial extent of the ground is to be determined at the rate of about 8 square metres (26.4 square feet) per scholar. It should not be in any case less than 400 square metres (1,320 square feet).

ART. 2. The arrangement of the buildings will be determined by the climate of the locality, taking into account the hygienic conditions, exposure, the shape and dimensions of the lot, the amount of space to be left open to the sky, and particularly the distance from other buildings.

If the maternal school forms part of a school group, care must be taken not to place the building between the boys' and girls' schools.

ART. 3. All the premises occupied by the children shall be on the ground floor.

The ground floor shall be raised three steps, of 0.15 metre (6 inches) each, above the level of the ground outside.

ART. 4. The school buildings shall be used only for school purposes.

2. *School rooms.*

ART. 5. If the building contains two school rooms they shall not be contiguous. Both shall communicate with the covered yard, either directly or by passages or galleries of at least 1.5 metres (5 feet) in width.

ART. 6. The school rooms shall be rectangular in form. Their floor space shall be of sufficient extent to assure a minimum of 0.8 square metre (2.6 square feet) to each child. Their height to the ceiling shall be 4 metres (13 feet) and maximum width 8 metres (26 feet 3 inches).

ART. 7. The flooring shall be of hard wood, laid, if possible, upon bitumen. However, in places where they are the only woods easily attainable, fir and pine may be used in the form of slats, after dipping in boiling linseed oil. If the floor has no cellar, it will be laid upon a platform or layer of material impervious to moisture.

ART. 8. The ceiling shall be plain and smooth. A north and south line shall be traced upon it. There shall be no cornice around the walls. The angles formed by the meeting of the walls (and partitions) shall be rounded in a curve with a radius of 0.1 metre (4 inches). All the interior facings shall have a smooth coating which can be frequently washed. There shall be a wainscot 1 metre (3.3 feet) high in each school room.

ART. 9. The doors shall be single, preferably, and 0.9 metre (3 feet) wide. No doors shall open directly from the school rooms to the outside of the building (streets, roads, or courts).

ART. 10. Lighting from the ceiling is forbidden. The windows shall be placed in the two longitudinal walls of the school rooms. They shall be rectangular or slightly arched. Their number and dimensions shall be so determined as to permit the light to reach all parts of the room. The distance from the bottom of the lintel to the ceiling shall be about 0.2 metre (8 inches). The sills shall slope on both faces and shall not be more than 1.2 metres (4 feet) from the ground. The sashes shall be made in two parts which can be opened separately for ventilation.

ART. 11. A stove shall be placed in every school room, having a water reservoir with free evaporating surface. These stoves shall be provided with a double metallic or a terra cotta envelope. They shall be surrounded with an iron grating and shall contain no ovens or plate warmers. The stovepipe shall not pass over the heads of the children. The children shall not be placed nearer the stove than 1.25 metres (4 feet). Cast iron stoves which give out heat directly into the room shall not be used.

ART. 12. Suitable arrangements for adequate ventilation of all parts of the room must be made concurrently with the heating. The openings for the admission of pure air (which must be taken directly from the outside of the buildings) and those for the escape of the bad air must be large enough to prevent choking by obstructions.

3. *Court yard, clothes room, washstands, lounges.*

ART. 13. The yard shall have an area of about 0.8 square metre (2.6 square feet) per scholar, and a height of 4 metres (13 feet) to the ceiling. The court yard shall be constructed in conformity with articles 5, 6, 7, 8, 9, 10, 11, and 12 preceding.

The furniture shall consist of pegs for hanging clothes, and open work shelves arranged along the walls; two or three wooden camp beds; fixed seats with backs, placed around the court near the walls; lunch tables and movable seats.

ART. 14. Washstands shall be placed at one end of the court in a place screened off by lattice work 1.2 metres (4 feet) high, with doors for entrance and exit. The height of the basins above the ground shall not exceed 0.5 metre (1 foot 7 inches). There shall be one basin for every ten children. The ground of this part of the court shall be tiled, cemented, paved with flags or with bitumen.

4. *Kitchen.*

ART. 15. The kitchen shall be in easy communication with the court yard. It shall receive light and air directly from the outside of the building. The floor shall be paved with tiles or flags or be cemented.

5. *Playground, garden.*

ART. 16. The playground shall have an extent of about 3 square metres (10 square feet) per child. It shall not contain less than 150 metres (500 square feet) in any case.

ART. 17. The ground shall be of sand. Bitumen, paving, or cement shall be used only in the passages and foot paths.

The passages and foot paths shall not be raised. If the ground is sloping the incline shall not exceed 0.03 metre per metre (1 inch to 3 feet).

The levelling shall be done so as to allow water to flow off.

Waste water and slops shall not be conducted across the playground in open conduits.

ART. 18. The playground shall be planted with trees placed at a suitable distance from the buildings and arranged so as to leave plenty of room for the exercises and games of the children. A small garden may be annexed to it.

A fountain of drinking water shall be placed in the playground.

Wooden benches, with slat seats and backs, shall be placed around the walls of the inclosure.

6. *Privies.*

ART. 19. Every maternal school building shall be provided with separate privies for each sex and with urinals for the boys. The privies and urinals shall be in communication with the court yard and school rooms by a screened passage.

ART. 20. The privies shall be placed so that the prevailing winds shall not blow the gases towards the buildings or the playground. They shall be divided into compartments, one compartment for about 15 children. Each compartment shall be 0.55 metre (1 foot 10 inches) wide and 0.8 metre (2 feet 7 inches) deep.

ART. 21. The seat shall be of wood. It shall be about 0.23 metre (9 inches) high and be slightly inclined forwards.

The opening, oblong in shape, shall be about 0.2 metre by 0.14 metre (8 inches by 5.5 inches). It shall not be more than 0.05 metre (2 inches) from the front edge. The bowl shall be provided with apparatus for closing it.

ART. 22. The urinals shall be at least equal in number to the privies. The compartments shall be 0.35 metre (14 inches) wide, 0.25 metre (10 inches) deep, and 0.7 metre (2 feet 4 inches) high.

ART. 23. The walls and floors of the privies and urinals shall be made of impervious material. All the angles shall be rounded. An inclined trough shall be arranged to convey the liquids to the seat, discharging above the closing apparatus of the latter. Water service shall be arranged for flushing and cleansing the urinals.

ART. 24. The vaults may be fixed or movable. Movable vaults are to be preferred when practicable, whatever mode of emptying is adopted. They shall be provided with ventilators. The fixed vaults shall be of small dimensions, but never less than 2 metres (6 feet 7 inches) long, wide, and high. They shall be arched, built of impervious material, and coated with cement. They shall be air tight, and the bottom shall be bowl shaped. The corners shall be rounded to a radius of 0.25 metre (10 inches). They shall be placed at a suitable distance from wells. They shall have a vent pipe, which shall extend as far above the roofs of the privies as the proximity of the neighboring buildings may require.

ART. 25. The urinals and privies shall have no fastenings. They shall be concealed by a solid partition placed at a distance of 0.6 metre (2 feet) from the front of the compartments. This partition, raised about 0.15 metre (6 inches) above the ground, shall not be higher than 0.7 metre (2 feet 4 inches).

7. *Apartments.*

ART. 26. The apartments of the directress shall consist of two or three rooms, a kitchen, cellar, and closets. The total area shall be about 70 square metres (230 square feet).

ART. 27. The apartments of the assistant shall consist of one room, with fire, and closet.

ART. 28. The school and these apartments shall be separate. They shall have no direct communication.

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CIRCULARS OF INFORMATION

OF THE

BUREAU OF EDUCATION.

No. 6-1882.

TECHNICAL INSTRUCTION IN FRANCE.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
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LETTER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., December 4, 1882.

SIR: In August, 1881, a commission consisting of Bernhard Samuelson, esquire, Fellow of the Royal Society; Henry Enfield Roscoe, esquire, doctor of laws, fellow of the Royal Society; Philip Magnus, esquire, bachelor of arts, bachelor of science; John Slagg, esquire; Swire Smith, esquire; and William Woodall, esquire, was appointed by Queen Victoria to inquire into the instruction of the industrial classes of certain foreign countries in technical and other subjects, for the purpose of comparison with that of the corresponding classes in Great Britain; and into the influence of such instruction on manufacturing and other industries in their own and foreign countries. The gentlemen composing the commission were eminently fitted for the special service required, and as every facility was accorded them in prosecuting their investigations their reports will constitute valuable additions to the current knowledge upon the subjects of their inquiry.

A preliminary report was made by the commission last February, whose purpose was stated to be "to make known without any unnecessary delay certain very recent changes in the French laws on public instruction, as well as the purport of others which are still under consideration." "These changes," the commissioners affirm, "are affecting and will further affect the ordinary and higher elementary instruction, both literary and technical, of the workmen and foremen of France, and in order to show their influence upon the former class it will be necessary to give some account of the recent and present position of these branches of instruction in that country."

Since the date of this writing the changes in the French laws referred to have become matters of general knowledge, but the information which the commissioners give from their own observation of manual and technical instruction in France is more precise and of later date than is elsewhere attainable.

In view of the growing interest in the subject of industrial and technical training and the inquiries constantly received in this Office in reference to it, I deem it advisable to publish the preliminary report of the royal commission for distribution in this country.

The report, it will be observed, falls naturally into two divisions: the first part relates to general elementary instruction, which, in the opinion of the commissioners, cannot be omitted in an estimate of the

means employed for developing the intelligence and skill of French artisans; the second part of the report relates to the specific subject of technical instruction.

I have the honor to recommend the above report for publication as a circular of information.

Very respectfully, your obedient servant,

JOHN EATON,
Commissioner.

The Hon. the SECRETARY OF THE INTERIOR.

Publication approved.

H. M. TELLER,
Secretary.

TECHNICAL INSTRUCTION IN FRANCE.

ROYAL COMMISSION ON TECHNICAL INSTRUCTION.

FIRST REPORT.

May it please Your Majesty, we, your commissioners, have found it expedient to conduct our inquiry into the instruction of the industrial classes as far as possible under the following heads, namely :

(1) The instruction of the proprietors and superior managers engaged in industrial pursuits.

(2) That of the foremen

(3) That of the workmen } engaged therein.

We have, during our visits to France and the north of Italy, collected data bearing on each of these heads, but we consider it is not desirable that we should publish the whole of the information which we have thus obtained until we are in possession of corresponding facts with regard to other countries, including the United Kingdom. To publish this information alone, without comment, would involve great risk of its not being properly understood, and we are not yet ourselves sufficiently informed to be able in all cases to present trustworthy conclusions as to the value of the institutions which we have seen.

At the same time we think it advisable to make known, without unnecessary delay, certain very recent changes in the French laws on public instruction, as well as the purport of others which are still under consideration.

These changes are affecting and will further affect the ordinary and higher elementary instruction, both literary and technical, of the workmen and foremen of France; and in order to show their influence upon the former class it will be necessary to give some account of the recent and present position of these branches of instruction in that country. Their effect on the education of foremen will be dealt with in a future report.

It is well known that elementary instruction was, until within the last fifteen or twenty years, in a very backward condition in many parts of France, but the information which we obtained from the authorities (confirmed, in so far as some of the larger towns are concerned, by our own observations, and, as to the country at large, by statistics) leaves no room for doubt that elementary education has been of late years, and is now more than ever, an object of great solicitude, and that both its area and its quality have undergone great improvements.

INSTRUCTION OF CONSCRIPTS IN FRANCE.

Comparing the present time with 1867, we find, as to the instruction of the conscripts, that whereas the percentage of those who were unable to read and write was as high as 47.8 in 1833, and had been reduced in 1866-'67 to 23 per cent.,¹ it had fallen in 1880 to 15 per cent.,² and the improvement has been very marked in the principal seats of industry. In the department of the Seine (Paris) there are now only 5.2 per cent. of illiterates, as against 6.7 in 1866; in the Rhone (Lyons), 6.1 per cent. as against nearly 10 per cent. in 1866; in the Gard, including the iron works and coal mines of Alais, &c., 12.1 per cent., as against nearly 18 per cent. in 1866; in the Marne (Rheims and the woollen district), 7 per cent., as against 18 per cent.; and the number of illiterates in the Seine-Inférieure (Rouen), which in 1866 was 25.6, though still very large, is reduced to 18.3 per cent.

FRENCH ELEMENTARY SCHOOLS AND TRAINING COLLEGES.

In 1867 the total number of children on the books of the primary schools was, excluding infants, about 4,500,000.

In 1879-'80, after the loss of Alsace and Lorraine, that number had increased to 4,950,000, out of a total population of 36,900,000 (census of December, 1876), the increase being in a great measure due to the state and local bodies taking upon themselves a larger proportion of the cost of primary education; for, whereas in 1866-'67 the number of children paying no fees was 1,917,000, this number had increased in 1879-'80 to 2,879,000.³

¹ Statistics of Primary Instruction from 1829-1877, vol. 2.

² Reports of French Inspectors on the State of Primary Instruction for the School Year 1879-'80.

³ The figures for the United Kingdom population, 35,246,633, census of 1881, are as follows:

Children of all ages present at inspectors' visits, 1879-'80, in elementary schools:			
England and Wales.....		3,268	147
Scotland.....		470	531
Ireland (present at least once during fortnight preceding examination).....		671	877
Total children.....		4,410,	606
Government grants for elementary education, training colleges, and inspection, 1879-'80:			
	£		£
England and Wales.....	2,481,168	}	3,773,963
Scotland.....	469,766		
Ireland.....	673,029		
Elementary science and art, United Kingdom.....	150,000		
Total state aid to elementary education.....		3,773,963	
Local rates for education, 1879-'80:			
	£		
England and Wales.....	1,562,000	}	1,775,335
Scotland.....	205,011		
Ireland.....	8,324		

Primary instruction is now gratuitous in Paris and in most of the large provincial towns of France as well as in many of the rural communes.

The amount expended in salaries of teachers, ¹ hire of buildings, printing, &c., for public primary instruction, was, in 1866, 2,160,000*l*.

In 1879-'80 it was 3,194,000*l*., of which—

	In 1866-'67.		In 1879-'80.
	£		£
The communes paid	874, 000	as against	1, 402, 000
The departments paid	180, 000	"	343, 000
The state paid	240, 000	"	714, 000
There was obtained from school fees...	800, 000	"	695, 000
The produce of legacies, &c., was.....	66, 000	"	40, 000
Total.....	2, 160, 000	"	3, 194, 000

The above sums include no portion of the cost of maintenance of those elementary schools which are not public schools, and which in

Local charges (capital account) for buildings, &c., 1879-'80 :

	£	£
England and Wales.....	1, 110, 000	} 1, 186, 801
Scotland.....	47, 780	
Ireland.....	29, 021	
School fees :	£	
England and Wales.....	1, 432, 000	} 1, 775, 107
Scotland.....	251, 807	
Ireland.....	91, 300	
Subscriptions and other sources :	£	
England.....	940, 000	} 1, 014, 510
Scotland.....	33, 994	
Ireland.....	40, 516	

Approximate total expended on elementary education in the United Kingdom in 1879..... 9, 525, 716

To which must be added subscriptions to training colleges, &c., new buildings of denominational schools, &c.

The government grants for 1881-'82 are as follows :

	£
England and Wales.....	2, 683, 958
Scotland.....	468, 435
Ireland.....	729, 868
Elementary science and art, United Kingdom.....	158, 000

Total state aid to elementary education 4, 040, 261

And local rates, school fees, and subscriptions are also largely increased, but there is as yet no return of them.

¹ In Paris, where the salaries of the elementary teachers are on the highest scale, assistant teachers, that is, all except the head master of a school (*directeur*), begin with 72*l*. and rise by increments of 8*l*. to 88*l*., besides 16*l*. instead of house rent. A few receive 8*l*. for teaching gymnastics and 24*l*. for instructing adult classes. After having served for about 10 years they become head masters, whose salaries begin at 104*l*., rising to 144*l*. If the head masters teach evening classes they are paid 32*l*. for these. They generally live in the school ; those residing apart from the school receive an indemnity of 24*l*. for house rent. In the rest of France, except in the principal towns, the salaries are much lower than those above indicated.

the year 1866 contained 978,000 children and in the year 1880 contained 934,000 children ; this number of children, however, being included in the numbers previously stated as being under instruction.

TRAINING SCHOOLS.

Of the 87 departments of France all but six have established training schools for masters. These schools contained in 1879-'80 4,115 pupils. The teaching staff consisted of 358 resident masters and 378 occasional professors. There were also 30 training colleges for mistresses, with 1,076 pupils instructed by 120 mistresses and 101 professors. The current expenses of the training schools in the above year were 156,800*l.*, of which 22,000*l.* were borne by the families of the pupils, 22,100*l.* by the state, and 112,700*l.* by the departments. There are also two higher training colleges in which the teachers for these normal schools are prepared.

ELEMENTARY ADULT SCHOOLS.

The number of scholars in adult elementary classes, which was 830,000 in 1866-'67, had fallen in 1878-'79 to 580,000, doubtless in consequence of the increased efficiency of the instruction during the school age.¹ At Le Creusot, for instance, where elementary instruction is universal amongst the children, and where there was formerly a complete system of elementary adult classes, these latter no longer exist. The adults in the classes throughout France are now also less illiterate; for, whereas in 1866-'67 357,406 of them were reported as absolutely or nearly untaught when they joined the classes, the numbers in 1878-'79 who on entering were unable to read were only 40,597, and of those who could only read, but not write, there were 43,381.

The course of instruction in the elementary adult classes varies very much. We have been unable to procure any recent authentic statistics for the whole of France of the number of pupils receiving instruction in the various subjects taught. Many of the classes are held on Sundays.

FREE LECTURES.

There are, moreover, in Paris courses of elementary and advanced lectures on every branch of literature, art, and science, including modern languages, social science, all the physical sciences (pure and applied), biology, mathematics, &c., delivered by men, some of whom have a worldwide reputation as standing in the foremost rank in their respective departments. These courses are gratuitous and attract an

¹The same cause has led to a similar reduction in the number of scholars attending the state-aided night schools in England and Wales, and it was stated by Mr. Mundella in the last session of Parliament that such schools were "annually on the decrease, their decline being something like from 70,000 or 80,000 to 40,000 in this year. The teaching of the three R's in the night school has ceased to be attractive." Hansard, vol. CCLXIV, p. 1230.

auditory composed as largely of working people as of any other part of the population. The courses of the Collège de France and of the Conservatoire des Arts et Métiers, whilst they are a source of interest to visitors from foreign countries, are also thronged by working men and women. There are similar courses in all the towns which we visited, and we believe in nearly all towns of any importance in France; nearly all of them are gratuitous. On the other hand, there is no systematic laboratory instruction in science for adults resembling that which we have in this country. We shall revert to this subject in a subsequent report when dealing more generally with the question of adult instruction.

ADULT ART CLASSES.

The number of art schools throughout France is very great; nearly all are founded and conducted at the expense of the municipalities. There are more than 100 art classes for adults in Paris alone, all of them numerously attended, most of them well furnished with models and apparatus of every description. The instruction in them is wholly gratuitous, and an enormous majority of the pupils consists of working-men. We shall speak of these classes in a future report under the head of art instruction.

FRENCH SHELTER SCHOOLS (SALLES D'ASILE).

The number of children in the shelter schools (salles d'asile) in 1866-'67 was 432,000, of whom three-fourths were received without payment. In 1879-'80 the salles d'asile contained 606,000 children, of whom five-sixths were received without payment. These institutions can scarcely be styled infant schools in the sense in which we ordinarily use the term. Their aim, besides affording shelter to children too young to attend the primary school, is principally to train the senses according to what is known as the Kindergarten system. Much importance is attached to the training in these schools by those who are advocating the further development of manual work in the elementary schools.

PRIMARY SCHOOL BUILDINGS.

Under laws enacted on the 1st of June, 1878, and the 3d of July, 1880, the communes had, from the earlier of those dates until the end of 1880, contracted loans for 2,400,000*l.*, repayable by annual instalments of one-twenty-fifth, extending over 30 years, for the construction, improvement, and furnishing of school buildings. During the same period the state and the departments granted subventions of 1,800,000*l.* for the same purposes, besides large sums paid by the communes out of their annual income.

In 1866 there were 1,707 communes which had no separate school of their own, and each of which joined with some other commune in maintaining a school. This number had been reduced in 1880 to 1,246.

Of communes altogether unprovided with schools there were still 243 in 1880, whereas in 1866 the number of these latter was 650.

STATE GRANTS FOR INSTRUCTION OF ALL GRADES.

The estimate of the ministry of public instruction for the year 1882 is, in round numbers, 3,430,000*l.*, including 634,000*l.* contributed by the departments; but it is expected that the former sum will have to be increased by from 800,000*l.* to 1,000,000*l.* for primary instruction, as the result of the law on gratuitous instruction of June 16, 1881, of which we shall speak later.¹ Of the above total sum, 1,126,000*l.* is the contribution of the state, not including that of the departments, to primary instruction, which will be subject to the augmentation which we have stated. There is no return showing precisely what portion of the 634,000*l.* contributed by the departments is applicable to elementary primary instruction. In addition to the above sums, there is a transfer of 200,000*l.*, formerly charged in the budget of public instruction, which is now charged to the Caisse des Écoles, a branch of the Caisse des Dépôts et Consignations, which lends money to the communes for school buildings. We give in Appendix No. I a summary of the estimate of the ministry of public instruction for 1882, which should be read with the above prevision.

The estimate for fine arts, which are now under a separate administration, includes a sum of 14,000*l.* for subventions to municipal schools for instruction in drawing. The estimate of the ministry of agriculture and commerce includes 40,000*l.* for veterinary schools, 80,800*l.* for agricultural instruction, 74,600*l.* for technical schools, and 8,600*l.* for schools of forestry. There is also an item for the École Centrale des Arts et Manufactures, but the receipts of this institution defray all the expenses connected with it.

Besides these sums there are very large amounts, recurring annually, disbursed by the State and the departments, and charged in various ways for the erection and repairs of school buildings for superior and

¹ The civil service estimates for elementary education, science, and art for 1881-'82 are as follows:

	£
England	3,210,000
Scotland	490,000
Ireland	758,000
	4,458,000
Buildings, Great Britain:	
Science and Art Department	22,141
Natural History and British Museum, and Edinburgh University Buildings.	26,500
Ireland:	
Science and Art	10,000
	4,516,141

Besides votes in the Army and Navy estimates and in the Indian Home budget.

secondary instruction, in addition to the sums which we have noticed above as having been expended on the building of primary schools.

There are also sums charged in the budgets of other ministries for educational purposes, namely, under the ministry of public works, 40,000*l.*, besides an unknown sum included in the item of 161,000*l.* for "new buildings, maintenance, repairs, &c."; under the ministry of war, 70,000*l.*; under the ministry of marine and of posts and telegraphs, votes are also taken for this purpose, but as they cannot be readily separated from other branches of the service, which have no direct reference to the education of the industrial classes, we have not included them.

OUTLAY OF FRENCH MUNICIPALITIES.

It may be useful to state the amounts spent by the representative municipalities of Paris, Lyons, Amiens, and Roubaix on public instruction.

It should be observed with regard to Lyons that, although one of the most important provincial cities of France and the centre of its great silk industry, its trade has, owing to various causes, been far from flourishing of late years, but that this fact has not prevented its citizens from voting increasing sums each year for education. Amiens may be taken as fairly representing the provincial towns of medium size, containing some important manufactories, but not being exclusively a manufacturing town. Roubaix is the centre of the trade in worsted fabrics.

PARIS.—Population (census of 1876), 1,938,806.¹

The figures for Paris are taken from the estimates for 1882, prepared by the préfet, but not yet adopted by the municipality, which latter for the last two or three years has always voted larger sums than the préfet has demanded.²

Public instruction.

(These figures do not include the office expenses of the central administration, nor the interest on money borrowed.)

Buildings:	£
Superior schools	3,600
Elementary schools and salles d'asile	20,000
Repairs of school buildings	10,800
Ordinary expenditure on secondary schools	28,000
Maintenance:	
Scholarships	9,400
Inspectors	3,000
Salles d'asile	66,100
Ordinary primary schools	397,500
Adult classes	15,400

¹ The population of Paris at the census of December 18, 1881, is set down at 2,225,910.

² We are informed that since this budget was presented there has been a large vote for apprenticeship schools not proposed in the estimate of the préfet, vide p. 23, *note*.

	£
Workshops in primary schools	10,000
Drawing in primary schools	39,500
Superior elementary instruction	119,200
Sundry subventions and prizes	41,000
Apprenticeship school	3,400
Repairs of school buildings for superior and secondary instruction	8,000
Repairs of primary and superior primary school buildings	16,400
Total	791,300

There is an estimate of receipts, amounting to 83,000*l.*, from the Collège Chaptal and the Écoles Turgot, Colbert, Lavoisier, J.-B. Say, and Arago; but should the law on gratuitous instruction apply to these institutions, as it would appear to do from the text, these receipts must be diminished by a very considerable sum.

LYONS.—Population, 342,815.

Primary and secondary instruction, budget of 1881:

	£
Buildings (annual vote)	50,000
Salles d'asile and primary school buildings	62,000
Technical or professional instruction	4,600
Higher instruction	12,000
Municipal drawing schools and sundries	3,500
Total	132,100

AMIENS.—Population, 66,896.

Primary and secondary instruction, budget of 1881:

	£
Buildings	2,700
Secondary schools	2,700
Primary schools	11,800
Salles d'asile	1,540
Elementary public lectures	900
Total	19,640

ROUBAIX.—Population, 83,697.

Primary and secondary instruction, budget of 1880:

	£
Buildings, repairs, &c	11,640
Maintenance	11,260
Total	22,900

and a further sum, forming part of a loan of 23,200*l.* contracted for the erection of new school buildings.¹

¹ These figures may be compared with the sums supplied by school board rates and loans for year ended 29th September, 1880, in the following English towns:

	£
London: Population (1881), 3,814,571.	
School board rate	545,000
Loans for purchase of land and erection and furnishing of buildings...	409,000
Manchester: Population (1881), 393,676.	
School board rate	18,600
Loans for purchase of land and erection and furnishing of buildings...	23,100
Bradford: Population (1881), 180,459.	
School board rate	28,000
Loans for purchase of land and erection and furnishing of buildings...	102,000
Nottingham: Population (1881), 111,631.	
School board rate	12,400
Loans for purchase of land and erection and furnishing of buildings...	23,300

ELEMENTARY SCHOOL AGE AND CLASSIFICATION.

The ordinary elementary school age in France is from the beginning of the seventh to the end of the twelfth year, and is divided into three courses, the elementary, the intermediate, and the superior, which last must not be confounded with the instruction in the superior elementary schools (*écoles primaires complémentaires*). Each of these three divisions occupies about an equal period of time. In the better schools, some of the courses are divided into two classes, and these classes again into parallel divisions, so that the number of scholars in each may not exceed from 40 to 50.¹ The whole of the instruction in a class or division, as the case may be, is, except for special subjects, conducted in a separate room. The hours of instruction are from 8 A. M. to 4 P. M., with 1½ hours' interval at noon, and one hour, from 4 to 5, for gymnastics.

The same master gives all the instruction of a class, except music, gymnastics, and occasionally drawing, in the male, and needlework in the female schools. Pupil teachers, as assistants, are permitted by law, but their employment appears to be obsolete, as we met with none and could not hear of any being employed in the ordinary elementary schools.

GENERAL ARRANGEMENTS AND SUPERINTENDENCE.

In many of the large cities the children take their dinners in the school. In some cases a kitchen is provided and the whole or a portion of the cost of preparing the food is borne by the school authority. In the poorer districts of Paris a portion of the cost even of the food itself is defrayed by the municipality, and in extreme cases the authorities provide boots and clothing for the children on the recommendation of the master.

The school buildings, many of which are old monastic and conventual establishments, vary exceedingly as to light, space, and hygienic arrangements.

Corporal punishment in all French schools of every grade is absolutely unknown. The superintendence of the schools of each commune is intrusted to its municipal council, but with certain powers of revision by a departmental school council, who nominate departmental inspectors. These latter, again, are under the supervision of 17 chief inspectors, one for each so-called academy. The departmental council is nominated by the minister of public instruction, through the préfet. The minister appoints also the chief inspectors.

Under the administration of M. Jules Ferry, conferences of elementary school teachers were organized in every canton, of which there are about 3,000 in France, for discussing the details connected with the instruction and management of the schools, choice of school books, &c.

¹ The division into classes is by no means fully carried out in the rural schools. The total number of primary schools in 1879-'80 was 77,764, which had only 112,476 classes, or considerably less than two classes per school.

ELEMENTARY CURRICULUM.

The ordinary obligatory curriculum of instruction comprises reading, writing, arithmetic, grammar, geography, the history of France, drawing, and music, and it is strictly carried out in all the large towns.

The elements of science are taught as object lessons in most of the large schools. Some of the schools have cabinets of minerals, botanical specimens, &c., and nearly all possess graphic illustrations of physical and political geography, natural history, raw materials, and manufactured products.¹

MANUAL WORK IN FRENCH ELEMENTARY SCHOOLS.

Instruction in manual work has of late been introduced into a considerable number of the primary schools of the city of Paris. Manual instruction may consist either in teaching the rudiments of a trade or an art simultaneously with the ordinary elementary instruction, as is practised in the school of the Rue Tournefort, or in simply accustoming the children to the use of tools commonly employed in working wood and iron, under proper instructors in the school building, but by preference out of school hours, as is the case in certain of the Paris primary schools.

SCHOOL OF THE RUE TOURNEFORT.

The primary communal school of the Rue Tournefort is, so far as we are aware, the only school in France in which rudimentary trade teaching is combined with ordinary elementary instruction. It was established on its present footing in 1873. Until the beginning of last year trade instruction was commenced at the age of 10 years and continued for three years. During the first two years every child was taught drawing, modelling, carving, joiner's work, and smith's and fitter's work. In the third year the work was specialized, some of the children being taught modelling and carving, others joiner's work and cabinet making, others again forging and fitting. Since the beginning of last year the same plan has been continued, but, in addition, the children in the lowest classes, beginning even at six years of age, have three lessons of one hour each per week of the instruction in handicrafts, which, until then, did not begin until they had attained the age of 10 years.

Although, as has been said, the work is specialized in the last year, the pupils engaged in modelling and carving return one day in each week of that year to the joiner's bench and the forge, the joiners and turners return to the forge and modelling, and the smiths to modelling and joiner's work. The school hours are from 8 in the morning till 6 at night, with a half holiday on Thursdays, and the scholars are

¹ The best of these illustrations are published by Deyrolle of the Rue de la Monnaie, and are supplied gratuitously to the poorer communal schools by the minister of public instruction.

allowed to come on Sundays from 9 o'clock till noon and from 1 till 4 for recreation and to take part in amusing lectures. In the highest class they have 18 hours' work per week in the "shops," besides instruction in drawing, geometry, and natural science. We give the time table in Appendix No. II. There are 360 children in the school. The children on leaving this school are generally able to earn from 2s. 6d. to 4s. per week.

MANUAL WORK IN PARIS PRIMARY SCHOOLS.

The reports of the inspectors not being very satisfactory as to the literary instruction in the school of the Rue Tournefort, the authorities of the city of Paris, in their further experiments in the introduction of manual instruction into the ordinary primary schools, have confined themselves to the teaching of more advanced drawing from models¹ and the use of the ordinary tools employed in working wood and iron, without attempting to teach special trades. The manual instruction in these schools begins only at the age of 10 years; it is for the present optional, and is given before and after the usual school hours. There were when we visited Paris 23 primary schools to which workshops had been attached; 10 others were on the point of being opened, and preparations were being made for attaching workshops to 12 others.² The rooms for instruction in drawing and the workshops in these schools are well ventilated and lighted. Special inspectors of manual work have been appointed, who determine the quantity of work to be done and judge of its quality.

We found that the municipalities of several towns which we visited were giving a favorable consideration to the introduction of manual labor into their ordinary elementary schools, after the example of Paris, and we were informed that both at Rennes and Marseilles arrangements have been made for teaching manual work in the primary schools.

FRENCH SUPERIOR ELEMENTARY SCHOOLS.

Besides the ordinary elementary schools there are, in most of the large towns, superior elementary schools (*écoles primaires complémentaires*) for literary and, in some cases, technical instruction. The cost of instruction in these schools, when it is not free to all, is very cheap, from 7 francs to 10 francs per month, and even these low fees are, in the case of the non-gratuitous schools, either partially or wholly remitted to many pupils by means of scholarships (*bourses*) granted by the state, the departments, and the communes. The entrance is obtained by a non-comp titivequalifying examination or on presentation of the *certificat d'études primaires*, to which we allude later.³ Some of these schools provide

¹ In all the ordinary primary schools of Paris drawing is taught from geometrical models and from casts, rather than from flat examples or copies.

² These types of school must not be confounded with the apprenticeship school, properly so called, the aim of which is to form journeymen in various trades, whilst giving them a somewhat more advanced literary and scientific instruction.

³ For description of this certificate, see also Appendix No. III.

workshop instruction adapted to the wants of the industries of the districts in which they are situated. We have not been able to obtain recent statistics of these schools, but they are increasing very rapidly in number, though they are still confined to the larger towns.

It was proposed recently to establish a superior primary school with workshop instruction in every canton, but it was thought that this political division would not correspond in practice with the industrial requirements, which should give the distinguishing character to each of these schools. We visited some of the principal types of them in Paris, Rheims, Lyons, Rouen, Lille, Douai, Nîmes, St. Étienne, Roubaix, and Amiens: some of these schools include instruction in weaving and dyeing and other manufacturing processes. The advanced age of the scholars in these schools places their advantages beyond the reach of those children whose parents are obliged to send them to work at the age of 13, and consequently they do not educate the ordinary workmen, but are available for the instruction of those destined to hold higher positions, whether industrial or commercial. This is true even in cases like that of the superior elementary school of Le Creusot, founded in strict relation to those great works. The children on leaving that school either become clerks or enter a higher technical school, generally the *École des Arts et Métiers* at Aix, in order to be trained as foremen or managers.

We only mention the superior elementary schools generally at this stage of our inquiry, because they will be affected by the law on gratuitous instruction. It will be our duty to describe them in a subsequent report, when we shall be able to compare them with the schools of a similar character in other countries.

FRENCH APPRENTICESHIP SCHOOLS.

There is, however, a peculiar type of superior elementary combined with technical instruction, namely, that of the apprenticeship schools, of which we deem it desirable to give some description in this report, on account of the special attention which is at present being given to them in France. The object of these schools is to form workmen as distinguished from foremen.

As yet such schools are few in number; two distinct types of them have been repeatedly described. We allude on the one hand to the apprenticeship school in the large printing establishment of Messrs. Chaix & Co., and on the other to the *École St. Nicolas* in the Rue de Vaugirard, conducted by a charitable association under the superintendence of the Christian Brothers. The schools of this association, including the branches at Issy and Igny, contain upwards of 2,400 pupils. The school in the Rue de Vaugirard alone has 720 ordinary scholars and 250 apprentices, all of whom are boarders. They pay an entrance fee of 2*l.* and 16*l.* 16*s.* per annum for their board and instruction. The pupils of the *ordinary schools* are not received until they have a tolerable knowledge

of reading, writing, and the first three rules of arithmetic. The course of studies for this section of the school includes moral and religious instruction, reading, writing, the elements of history, of geography, and of the French language and literature, arithmetic, the elements of algebra and geometry, surveying, linear and ornamental drawing, modelling, book-keeping, the elements of physics and chemistry, vocal and instrumental music, English, German, and gymnastics.

The average age at which the apprentices usually enter the workshop is 14. Their parents contract with masters or foremen of good character, selected by the Christian Brothers to teach them their trades. The work is done in the school at the risk and for the benefit of their masters, and without profit to the school; the boys receive no payment of any kind. The apprenticeship is for three or four years, according to the nature of the trade. After its expiration the apprentices may remain as journeymen in the workshops of the establishment for one year longer, their board being paid for by the masters for whom they work. There is a house, patronized by the establishment, in the Rue de Turenne in which the workmen, after they have left the Rue de Vaugirard, are lodged and boarded on very reasonable terms. This house contains club rooms, a library, and free classes in drawing, book-keeping, foreign languages, &c.

The apprentice boys receive instruction from the Christian Brothers for two hours daily, which comprises not only the ordinary school lessons, but also teaching in drawing, modelling, and other appropriate subjects. The following trades are taught: Bookbinding, optical and mathematical instrument making, type setting, printing, working and chasing in bronze, brass instrument making, gilding, joiners' work, saddle making, wood carving, wood engraving, map engraving, and engine fitting. The apprentices appear to be well taught, and find employment readily after they have left the workshops at wages, it is said, varying from five to even as much as eight francs per day.

MUNICIPAL APPRENTICESHIP SCHOOLS—SCHOOL OF THE BOULEVARD DE LA VILLETTE.

Several of the municipalities of France have considered the subject of apprenticeship one of sufficient interest to induce them to establish public apprenticeship schools, one of which, the municipal school of the Boulevard de la Villette, in Paris, for workers in wood and iron, has been in operation since the 8th December, 1872. Unlike the *École St.-Nicolas*, it is a day school. The boys are admitted, after they have left the ordinary primary school, on presenting the certificate of primary studies or on passing an equivalent examination. The instruction is gratuitous, and is divided into general and technical. The general instruction, besides continuing those subjects which are obligatory in primary schools, includes some which are optional in those schools, such as the elements of mathematics, physics, mechanics, and chemistry.

their relation to industry. As will be seen from the report of M. Corbon on this school (see Appendix No. IV), the error was at first committed of making this latter instruction too advanced, with the result of fatiguing the scholars and rendering them inattentive. We believe this mistake has now been corrected. The theoretical instruction also includes explanations concerning the tools, materials, the processes, and the products presented by the range of practice of the workshops. During the summer visits are paid to industrial establishments, of which the scholars give an account in writing.

The trade instruction in the workshops is subdivided into two courses. In the first the pupils are taught the nature and conversion of materials. In the second they pass on to actual construction. The first or preparatory course is the same for all the pupils. They all go in rotation through the workshops for both wood and iron. One of the reporters on the schoolsays that "this is done in order to give suppleness and certainty to the hand, and to enable them, when they have become workmen, to take up in case of need, at any rate for a time, a trade different from their ordinary one, and thus to gain a living in bad times." The choice of a trade takes place only at the commencement of the second course, which coincides with that of the second year, and it is only then that they begin to execute actual constructive work. No apprentice is allowed to commence any work, whether complete in itself or a part of a machine, without having previously made a sketch or a drawing of it to scale, so that the pupil must necessarily acquaint himself with its proportions and connections and understand fully the nature of what he is doing.

The entire course occupies three years. The boys enter the school at 7 A. M. and leave at 7 P. M. During the first two years six hours daily are spent in the workshop and four in the school. In the third year eight hours are spent in the workshop and two in the school, leaving in each case two hours for meals and recreation, the latter including three hours of gymnastic exercises per week.

The following is the time table :

Time table of the Paris Municipal Apprenticeship School.

Day.	Years.	7 to 8.	8 to 9.	9 to 10.	10 to 11.	11 to 12.	Observations.
Monday....	1	Preparation of lessons.	French.	Sketches.	Preparation of lessons.	English.	For all the three years (12 to 1, lunch and recreation. 1 to 3, workshops. 3 1/2 to 4, meal and recreation. 4 to 7, workshops. From 10 minutes to 10 until 5 minutes past 10 there is a quarter of an hour's recreation for all the boys.
	2	"	Mathematics.	Preparation of lessons.	English.	Physics.	
	3	"	Mechanics.	Chemistry.	Workshops.		
Tuesday...	1	"	Technology.	Preparation of lessons.	Sketches.	Geography.	
	2	"	History.	French.	Preparation of lessons.	Mathematics.	
	3	"	Sketches and drawing.		Workshops.		
Wednesday	1	"	History.	French.	Preparation of lessons.	Mathematics.	
	2	"	French.	Preparation of lessons.	Sketches and drawing.		
	3	"	Technology.	Mathematics.	Workshops.		
Thursday.	1	"	Physics.	French.	Preparation of lessons.	English.	
	2	"	Geography.	Preparation of lessons.	English.	Chemistry.	
	3	"	Sketches and drawing.		Workshops.		
Friday.....	1	"	Chemistry.	Drawing.	Preparation of lessons.	Mathematics.	
	2	"	Technology.	Preparation of lessons.	Sketches and drawing.		
	3	"	Preparation of lessons.	Mathematics.	Workshops.		
Saturday ..	1	"	Preparation of lessons.	Mathematics.	Preparation of lessons.	Descriptive geometry.	
	2	"	Mechanics.	Preparation of lessons.	Descriptive geometry.	Mathematics.	
	3	"	Physics.	Common law.	Workshops.		

The school is under the superintendence of a council, composed of one of the chief school inspectors of the city of Paris, of the director of the school, and the superintendent of the workshops.

The general conduct of the scholars is reported to be good. It has, however, been necessary to exclude some boys for insubordination. The rewards, besides those common to French schools, consist of a fortnightly premium, varying from 25 centimes to 3 francs, and prizes of books, tools, and articles manufactured in the school. The attendance is fairly regular, the average number of absentees not exceeding 7 per cent., including the absences caused by illness. The irregularity is confined mainly to the pupils of the first year. The boys become more assiduous as they become accustomed to their work. When we visited the school unannounced we found the lads working steadily and looking strong and healthy. M. Gréard, in his report of 1878, states that during the five preceding years not one of the boys had died.

The number attending the school has been constantly increasing. In

January, 1873, it had only 17 scholars. On May 1, in the same year, the number was 64; last year it was 250, of whom 107 were of the first year, 81 of the second, and 62 of the third year.

A considerable proportion of the boys leave the school during or at the end of the first year, generally because their parents find that they are not fit for the work. A smaller number leave at the end of the second year because their parents are unable or unwilling to forego their earnings for a longer time. These latter boys, on leaving the school, often receive fair wages in second rate workshops. It appears from a table furnished to us by M. Bocquet, the superintendent of the workshops, that the boys who were in the school last year in their second and third years were distributed among the trades as follows:

	Second year.	Third year.
Fitters	42	34
Smiths	5	2
Turners in metal	3	5
Carpenters and joiners	4	2
Pattern makers	11	5
Wood turners	0	0
Locksmiths	11	4
Electrical apparatus makers	5	10
Total	81	62

This table, as well as the general experience of the school, shows that the greater number of the boys become engine fitters or pattern makers, the two trades which in Paris command the highest wages.

The work of the electrical instrument makers shown to us was remarkable for excellence of quality, but some of the school authorities do not appear to attach much value to this branch of work.

The boys on leaving the school, with very few exceptions, earn wages varying from 2s. 6d. to 5s. 6d. per day.

The buildings which were originally erected for the purposes of a manufactory have been considerably enlarged since their acquisition by the city of Paris, and, like many of the elementary schools, labor under the defect that they were not specially designed for the use to which they are now applied. The total sum which has been expended on them is 49,000*l.* The annual cost of the maintenance of the school is under 3,000*l.*, or somewhat less than 12*l.* for each pupil. We give, in Appendix No. VIII, some letters with which we have been favored, in which opinions are expressed concerning the work of the pupils educated in this school.

PROJECTED APPRENTICESHIP SCHOOLS FOR PARIS.

The authorities of the city of Paris have deemed the experiment of apprenticeship teaching in the school of la Villette sufficiently success-

ful to induce them to decide upon the erection of a number of other similar schools in various parts of the metropolis.¹ The whole subject was referred to a commission, and its president, M. Tolain, in a report to the prefect of the Seine, which will be found at length in Appendix No. V, says "that in consequence of the virtual abolition of apprenticeship in most trades, and owing to the specialization and subdivision of manufactures resulting from the introduction of machinery, the number of skilful and intelligent workmen in all branches of industry and art manufacture has decreased, and that the standard of technical knowledge has been lowered."

This, he considers, has been especially prejudicial to French manufactures, the distinguishing merit of which he believes to have consisted in originality of design. The vulgarization of manufactures has, in his opinion, given great facilities for piracy, especially on the part of foreigners. He believes that a remedy for these evils will be found in the establishment of apprenticeship schools, the object of which should be mainly, not the creation of foremen, but the theoretical and practical education of workmen proper. In determining what should be the trades taught in schools founded and carried on at the cost of the municipality, he calls attention to the fact that apprenticeship still exists in those branches of industry which are concerned with the making up of materials into clothing, and he proposes, therefore, that these arts should not be taught in the municipal schools. He would confine them to what he calls "parent industries;" that is to say, those in which the processes to be taught are applicable to a large number of allied trades. He recommends accordingly that for the present three apprenticeship schools should be established, one in the Faubourg St.-Antoine for the furniture trades, to form workers in wood, who would become chiefly cabinet makers and upholsterers, but also carpenters, joiners, and wood carvers, and workers in iron intending to become general smiths and workers in metal for the same trades and for decorative purposes. The second school should be for the south of Paris, on the model of that of la Villette, intended, however, to train not only mechanics, but also iron founders, carpenters, stone cutters, and masons, iron and tin plate workers, slaters, and plumbers, so as to be a complete school of apprenticeship for the building trades. A third school in the heart of Paris should comprise the following trades, viz, instruments of precision, telegraphic apparatus, clock making, surgical instrument making, and small machinery in general.

PROPOSED GIRLS' APPRENTICESHIP SCHOOL.

In addition to these three schools for boys he recommends that a school should be established for girls, which should be not only an apprenticeship school, but also one of domestic economy; the latter division would include general housework, laundry work, sewing, and, in addi-

¹We are informed that they have within the last few days voted 80,000*l.* for the erection of these schools.

tion, the obligatory parts of primary instruction, together with linear drawing, gymnastics, singing, and some special notions of technology having reference to the duties of housekeeping and to the materials to be used in the workshops. The trades to be taught would be millinery, embroidery, lacemaking, dressmaking, artificial flower and feather making, and with these latter there would be compulsory courses of drawing from flowers and nature and of modelling.¹

The estimate for the girls' school, intended to receive 300 outdoor pupils, is, for buildings alone, exclusive of the ground, 21,600*l.*, and for fittings, 1,600*l.*

The instruction in all these schools will be gratuitous, and the pupils, in order to be admitted, will have to present the *certificat d'études* of the primary school.

HAVRE APPRENTICESHIP SCHOOL.

A few provincial municipalities have established apprenticeship schools of the same type as that of the Boulevard de la Villette, that is to say, schools to form workmen and not foremen. There is one at Havre, which has undergone various transformations, and is now one of the most complete of its kind in regard to buildings and fittings. The course, like that of the Villette school, occupies three years. The time spent in the workshops is six hours daily throughout the whole course. The book work begins at a much more elementary stage than in the Paris school, and appears not to be carried so far; no *certificat d'études* is required on entrance. Even absolutely illiterate children have been admitted if they have shown some manual dexterity. The admission or rejection of applicants is in fact left to the discretion of the head master. With the object of inducing the apprentices to remain at school during the third year, the pecuniary rewards are much higher than in the Paris school. A boy here may receive as much as 6*l.* in his third year. Notwithstanding this, the number of boys who completed their third year diminished steadily from 1876-'77 to 1878-'79; it was 26 in the former and only 17 in the latter year; 16 of these entered private workshops and 1 went to sea as an engineer. The cost of maintaining the school, exclusive of materials used in the workshops, was, in 1880, 1,120*l.* for 160 boys, a small portion of which was recovered by payments for work done by the boys.²

¹ A girls' school, corresponding in some particulars to the above, and maintained by the municipality of Rouen, the *École professionnelle des jeunes filles*, was visited by the commissioners. There are in Paris establishments conducted by nuns, containing a large number of children, who work at artificial flower making, millinery, and other trades, but these cannot be considered as apprenticeship schools.

² Since this report was written, we learn that the municipal authorities of Boulogne-sur-Mer are establishing an apprenticeship school on the model of that of la Villette, which it is expected will be opened before the end of the present year.

GUILD APPRENTICESHIP SCHOOLS.

We were told that several of the Paris syndicats (guilds) of employers had established apprenticeship schools, but we found on inquiry that nearly all of these were simply drawing schools for evening instruction. The jewellers have founded prizes of considerable value for original goldsmiths' work, to be competed for by their apprentices. The only apprenticeship school proper founded by a guild that we met with was that of the clock makers in the Faubourg du Temple. The trade of clock making is carried on in Paris in the houses of the work people, to whom the parts are given out in the rough, and the masters have therefore no control over the instruction or training of the apprentices. Under these circumstances they established the school in February, 1881. It contains 25 pupils, the course lasting four years. The present premises are only provisional and are about to be extended. The expenses are mainly borne by the Chambre Syndicale de l'Horlogerie, which contributes 560*l.* The government has granted the school a subvention of 80*l.* and the city of Paris 40*l.* The pupils pay 12*l.* per annum and provide the small tools needed in their work. The larger tools (machinery) are furnished by the school authorities. The pupils receive complete instruction in watch and clock making, and the teaching is both theoretical and practical. The practical course for the first class¹ is the use of tools and roughing out work; for the second class, finishing; for the third class, escapements; and for the fourth, regulating and repairs. The course of theoretical instruction for the first three years includes French, the elements of mathematics, geometry, and machine construction applied to watch and clock making, the theory of the construction of watches, book keeping, and linear drawing. In the fourth year they are taught algebra, trigonometry, the elements of physics and chemistry, cosmography, and industrial drawing. Examinations take place at the end of each school year. Students are admitted at 14 years of age, but not earlier, except in special cases. The working hours during the winter months (from October to April) are from 8 A. M. to 7 P. M., with an interval of one and a half hours from 12 to 1.30 for meals and relaxation. During the remainder of the year the hours are from 7 A. M. to 7 P. M., with the same interval as before. Arrangements have been made for boarding the pupils at a fixed inclusive charge of 32*l.* per annum. Even when machinery shall to a great extent have superseded manual labor in the wholesale manufacture of watches and clocks, a number of skilled operatives will always be required in this trade, so that the school will not cease to be useful.

GOVERNMENT APPRENTICESHIP SCHOOLS.

The government has founded, and sustains, certain apprenticeship schools for manufactures; one of them is the watchmaking school at

¹ Each class represents a year's work.

Cluses, under the ministry of agriculture and commerce. It is taking the place of a municipal school for the same trade at Besançon, which has been frequently reported on, but which we were told by a competent authority is now declining. Another is the school of porcelain decoration at the manufactory of Sèvres, founded within the last two years by the director, M. Lauth, of which, as well as of the recently remodelled school of a similar character at Limoges, we shall speak when we come to deal with art schools. There is also an apprenticeship school attached to the Manufacture des Gobelins.

GROUND'S FOR LEGISLATION IN FRANCE.

From the preceding statements it will be observed how great is the activity displayed in France in all that relates to the instruction of artisans. But those who are engaged in this great work are also fully alive to its deficiencies. The reports of the government primary school inspectors abound in complaints of imperfect methods of instruction and of irregular attendance. The proportion of uncertificated teachers in the *écoles libres* (that is, those schools not owned by the communes, including private schools), and especially amongst the female teachers in the schools taught by the religious orders, both public and "*libres*," is very large, and as a consequence the instruction is reported as being very inferior in many of these schools.

The ultimate results of the teaching in the ordinary elementary schools, as shown by the examinations on leaving, are not satisfactory. Children who have completed their twelfth year are admitted to an examination, without passing which they are not allowed to work full time (12 hours) in workshops and factories before the age of 15. We give the full regulations of this examination in Appendix No. III. It will probably not be considered more difficult than that of the children in our English schools who pass the fifth standard and have taken up one or more of the special subjects. The entire number of children out of the 4,900,000 on the books in 1879-'80 who presented themselves for examination for this certificate was 85,825, of whom only 57,336 passed. The examination for this certificate was, until lately, a dead letter in many departments, which may partly account for the smallness of the number who presented themselves.¹

The educational provisions of the factory law of May 19, 1874, the full text of which is given in Appendix No. VI, appear not to be well observed in many localities. By its eighth article this law directs that children up to 12 years of age shall attend a school, and in Article 9 it provides that young persons up to the age of 15 years (completed) shall only work 6 hours a day, unless they produce a certificate of primary

¹ No certificats d'études were delivered in 1879-'80 in the Loire-Inférieure, where so many of the children and young persons are employed in factories; the cause being, stated to be a refusal on the part of the general council of the department to allow the examination to be held.

instruction. The 15 regional inspectors are quite unable to insure the observance of these regulations, unless assisted by the special inspectors or by the local committees for which the law provides. These committees and inspectors, whilst very active in Paris, are either wanting or inefficient in many of the departments.¹

These defects in the state of ordinary elementary instruction, the desire to extend the introduction of manual work into ordinary elementary schools and to encourage higher elementary and trade instruction, combined with political and social considerations into which it is no part of our duty to enter here, have led to the enactment of the law of December 11, 1880, on handicraft apprenticeship schools, and of the law of June 11, 1881, on gratuitous primary instruction, and to the introduction of the projet de loi on compulsory primary instruction, which is still before the chambers.

FRENCH LAW ON SUPERIOR ELEMENTARY INSTRUCTION.

The law of the 11th December, 1880, provides that apprenticeship schools, founded by the communes and the departments to develop in young persons intending to become artisans the necessary dexterity and technical knowledge, and public superior elementary schools (*d'enseignement primaire complémentaire*), the curriculum of which includes courses or classes of professional instruction, are to be ranked in future as public primary schools.

Schools of the same character as the preceding, but which are not public schools, are included amongst those which may receive assistance from the budget of public instruction after they have been established and working satisfactorily for two years. Schools of both of these categories may also receive assistance out of the funds of the ministry of agriculture and commerce as being technical schools.

The programmes of their founders (communes, departments, or otherwise) must be approved by the ministers of public instruction and of agriculture and commerce.

The head master is appointed on the recommendation of the municipal council of the commune or of the general council of the department, as the case may be. The teachers of trades are appointed by the maire or the préfet, as the case may be, on the recommendation of the council of supervision attached to the school; the council itself is nominated by the municipal council or by the general council of the department.

VIERZON SCHOOL UNDER THE ABOVE LAW.

By a decree of the 9th July, 1881, a national school of superior primary and technical (professional) instruction, preparatory to apprenticeship, destined to serve as a type for similar schools, to be founded under the law of December 11, 1880, is created at Vierzon.

¹ See report of M. Dumas, 6th May, 1878, quoted in M. Gréard's report of 1st November, 1878.

A report dated 11th August, 1881, by M. Tolain, president of a commission appointed by the minister of public instruction, although the commission was simply requested to prepare the programme of a school for superior primary and professional instruction, recommends (see report in Appendix No. VII) that the establishment in question shall comprise a series of graded schools, consisting of a *salle d'asile* and Kindergarten; an ordinary primary school, in which manual work is to be taught, and a superior primary school of a somewhat advanced character, including technical instruction and extending over a three years' course. The entire range of instruction is intended to be introductory to schools which the report designates as special apprenticeship schools of the second degree; that is, schools like the *Écoles des Arts et Métiers*, for training foremen and managers, of which we shall speak in a subsequent report.

FRENCH LAW ON GRATUITOUS PRIMARY INSTRUCTION.

The provisions of the law on gratuitous primary instruction, passed on the 16th June, 1881, are as follows:

From the day when this law came into force (1st January of this year) no school fees are payable in public primary schools or public *salles d'asile*, and no charge is to be made for boarding or instruction in the training schools (*écoles normales*).

A sum equal to 4 per cent. of the four so-called "*quatre contributions directes*," viz, the tax on real property, window tax (*portes et fenêtres*), tax on movable property (*contribution mobilière*), and license fees (*patentes*), must be provided by every commune for the service of primary instruction, either by a special vote or out of its general funds.

Besides the sum before mentioned, every commune (except the poorest) must devote to the service of its primary schools, before it is entitled to aid from the department or the state, one-fifth of the income derived from the following local sources of revenue: (1) the income from its real property; (2) its share in the duty on horses, carriages, and game licenses; (3) the dog tax; (4) the net income from the *octroi*; (5) the income from highways and from markets and fairs.

If these resources are insufficient, a like sum equal to 4 per cent. of the four direct taxes must similarly be raised by the departments.¹

If the total amounts thus raised are insufficient for the service of the schools, the state will provide the deficiency.

The salaries and allowances of the teachers at present employed are in no case to be less hereafter than the highest amount which they have received during the three years preceding the date when the new law came into operation, and these salaries are in future to be determined each year by the minister, on the proposal of the *préfet*, and by the ad-

¹*In practice this sum of 4 per cent. is now required and voted in all the departments, and will continue to be so.*

vice of the departmental council. It must be understood that the financial portion of the law applies to the maintenance and not to the construction of schools, and that the latter will be provided for as before, by loans from the Caisse des Écoles, aided, in the case of poor communes, by the department and the state.

The optional tax, in addition to those mentioned above, which the communes were authorized to impose upon themselves under a law of the 10th April, 1867, if they chose to adopt gratuitous education, ceases, and the charges which the communes and departments have to bear are strictly limited. There will no longer, therefore, be the same temptation as formerly on the part of the poorer communes to keep down the expenses of the schools.

OPERATION OF THE TWO LAWS.

By the joint operation of these two laws school fees are abolished, not only in the ordinary public elementary schools, but in all public superior elementary schools in which technical instruction is given or in which trades are taught.

It is expected that the communes will, under these new circumstances, avail themselves to the fullest extent of their powers to borrow from the Caisse des Écoles; that ordinary primary schools will be built in those communes where they do not as yet exist; that instruction in the existing schools will be largely extended and improved, and that a great impulse will be given to the creation of superior elementary and technical schools under the new definition, now given, of an école primaire.

FRENCH LAW ON COMPULSORY PRIMARY INSTRUCTION.

But the extent of this impulse in the immediate future to elementary instruction in France, as now defined, can only be properly estimated after taking into account further the certainty admitted by persons of all shades of opinion in that country, that attendance at school or efficient instruction at home will be made compulsory at a very early date. A projet de loi on compulsory instruction, introduced by the government, was adopted by the chamber of deputies on the 24th December, 1880. It was modified by the senate as regards some of its minor provisions, and returned to the chamber, which latter, accepting some of the changes made by the senate and rejecting others, passed it again on the 25th July, 1881.

[The commissioners here embodied the bill, for which is substituted the law as finally passed March 28, 1882 :

ARTICLE 1. Primary education includes moral and civic instruction; reading and writing; the French language and the elements of its literature; geography, especially that of France; history, especially the modern history of France; the elements of law and political economy; the elements of the natural, physical, and mathematical sciences, and their applications to agriculture, to hygiene, and to the industrial arts; manual work, and the use of the tools of the principal trades; the elements of drawing and modelling; music and gymnastics; and, for boys, military exercises; for girls, needlework.

ART. 2. The primary public schools shall be closed one day each week besides Sunday, to allow parents to give their children religious instruction, if they wish, outside the school buildings. Religious instruction is optional in private schools.

ART. 3. The provisions of articles 18 and 44 of the law of March 14, 1880, which give to the ministers of worship a right of inspection, surveillance, and control in public and private primary schools and *salles d'asile*, as well as paragraph 2 of article 31, of the same law, which gives to the consistories the right of presentation for teachers belonging to non-Catholic denominations, are hereby repealed.

ART. 4. Primary instruction is compulsory for children of both sexes, from the beginning of their seventh to the end of their thirteenth year. It may be given either in establishments of primary or secondary instruction, or in public or private schools, or at home by the head of the family himself, or by some person chosen by him.

A regulation will determine the means of securing primary instruction to deaf-mute and blind children.

ART. 5. A municipal school board is established in each commune¹ to direct and increase attendance on the schools.

It is composed of the maire, who is president; of one of the delegates of the canton, and, where communes comprise several cantons, of as many delegates as there are cantons, appointed by the academic inspector;² of members appointed by the municipal council, to the number at least of a third of the membership of the council.

At Paris and Lyons there is a board for each municipal *arrondissement*. It is presided over at Paris by the maire, at Lyons by one of his assistants: it is composed of one of the cantonal delegates, of members appointed by the academic inspector and of members appointed by the municipal council, to the number of from 3 to 7 for each *arrondissement*.

The authority of the members of the school board appointed by the municipal council shall last until the election of a new municipal council, and shall always be renewable.

The primary inspector forms part of all the school boards established in his jurisdiction.

ART. 6. Children may present themselves for examination for a *certificat d'études* at the age of 11, and, on passing it, are to be exempted from further compulsory primary instruction.

ART. 7. The father, the guardian, the person who has charge of the child, or his employer, is required to inform the maire of the commune fifteen days before the opening of the schools whether he intends to have the child taught at home or in a public or private school; in the latter case he must indicate the school he has selected.

Families domiciled near two or more public schools have the right of entering their children in any one of such schools, whether or not it is on the territory of their commune, provided the maximum number of scholars ascribed to the school by law is not complete. In case of dispute, and upon request either of the maire or of the parents, the departmental council has the final decision.

ART. 8. Every year the maire, in coöperation with the municipal school commission, is required to draw up a list of all children from six to thirteen years old, and notify the persons who have charge of them of the time set for opening the schools.

In case of failure to give the required fifteen days' notice on the part of parents or other responsible persons, the maire himself enters the child at one of the public schools and notifies the proper responsible person of the fact.

A week before the opening of the schools the maire is to remit to the directors of the public and private schools a list of the children who are to attend their schools. A duplicate of this list is to be sent by him to the primary inspector.

ART. 9. When a child leaves a school, his parents or the persons responsible for him are required to notify the maire at once of the fact and state in what manner the child is to receive its instruction in future.

ART. 10. When a child is temporarily absent from school, his parents or the persons responsible for him are required to explain to the school director the reasons for his absence.

The school directors and directresses shall keep a register of attendance, which shall show the absences of the scholars of each class. At the end of each month they shall send to the maire and the primary inspector a copy of the register, indicating the number of absences and the reasons alleged therefor.

The causes of absence shall be submitted to the school commission. The only legitimate excuses are the following: Sickness of the child, death of a member of the family, and accidents of travel which prevent the child from reaching the school. Other exceptional circumstances will be duly considered by the commission.

ART. 11. Every director of a private school who fails to comply with the require-

¹ There are about 36,000 communes in France.

² France is divided, for the purpose of public instruction, into 17 academic districts.

ments of the preceding article shall, at the instance of the school commission and the primary inspector, be reported to the departmental council.

The departmental council may inflict the following penalties: 1, admonition; 2, censure; 3, suspension for not longer than one month, and, in case of a second offence during the school year, for not longer than three months.

ART. 12. Where a child has been absent four times in one month, for at least a half day, without an excuse allowed by the municipal school board, the father, guardian, or responsible person shall be summoned after 3 days' notice to appear before the board, where the text of the law will be brought to his attention and his duty under it explained to him.

In case of unexcused non-appearance the board shall inflict the penalty named in the following article.

ART. 13. In case of a repetition of the offence within twelve months, the school board shall order the name of the responsible person to be posted on the door of the *mairie*, together with the charge against him.

The same penalty shall be inflicted on persons who disregard the provisions of article 9.

ART. 14. If the offence is again repeated, the school board or primary inspector shall address a complaint to the *juge de paix*. The infraction shall be considered an offence and the penalties prescribed by articles 479, 480, and following ones of the penal code may be imposed.

Article 463 of the same code is applicable.¹

ART. 15. The school commission may grant to children residing with their parents or guardians, on request (with reason therefor) of the latter, leave of absence for a time not to exceed three months, exclusive of vacations. When these leaves of absence exceed two weeks they must be submitted to the primary inspector for approval.

This arrangement shall not apply to children who desire to accompany their parents or guardians on a temporary absence from the commune. In this case a verbal or written notice to the *maire* or the teacher will be sufficient.

The school board may, subject to the consent of the departmental council, exempt children employed in trades or in agriculture from one of the two daily attendances.²

ART. 16. Children who are educated at home shall undergo an annual examination after the second year of compulsory instruction upon the subjects taught to children of their age in the public schools, in such manner and according to such programmes as shall be determined by ministerial decisions given in the superior council.

The examining board shall be composed of the primary inspector or his delegate, as president; a delegate from the canton; a holder of a university degree or certificate of qualification. The judges shall be selected by the inspector of the "academy" (educational district). In the girls' examination the person holding the certificate must be a woman.

If the examination is not satisfactory the child must be sent to a public or private school within a week and the *maire* advised what school has been chosen.

If no such designation is made the child will be placed at school by the authorities as before described.

ART. 17. The school fund provided for by article 15 of the law of April 10, 1867, shall be established in all the communes. In subsidized communes in which the centime does not exceed 30 francs, the department of public instruction shall increase the fund by an amount equal to the sum of the communal appropriations. The aid is distributed through the school board.

ART. 18. Ministerial decisions rendered at the request of the inspectors of academies and departmental councils will indicate each year the communes to which, from want of school accommodations, the requirements of articles 4 and following, upon compulsory attendance, do not apply. An annual report submitted to the Chambers by the minister of public instruction will furnish a list of the communes to which the present article may have been applied.]

CONCLUSIONS.

We think it will be evident from the account which we have given of the new laws enacted and proposed that their influence on the diffusion

¹ The penalties here referred to are a fine of from 11 to 15 francs and imprisonment for not more than 5 days. Article 463 allows these penalties to be reduced at the discretion of the judge.

² Hence, on the passing of this law, children under the age of 13 can only be employed as half-timers in trades and agriculture by the joint consent of the commune and of the department, unless, at or above the age of 11, they have obtained the certificate of studies.

of ordinary and superior primary instruction, both literary and technical, can scarcely be overrated. It is clearly the aim of the government and of the great cities that this superior instruction shall be placed as fully as possible within the reach of the workingmen. The instruction in the use of tools during the elementary school age, besides being of service to every child, whether destined to become a mechanic or not, will tend, in the former case, to facilitate the learning of a trade, though it may not actually shorten the necessary period of apprenticeship. We should be glad to see this kind of manual instruction introduced into some of our own elementary schools. The consideration of the expediency of a grant from the education department for instruction of this kind may well be deferred for the present. Of the benefit to be derived from more diffused and advanced literary instruction we need not speak.

We have greater difficulty in estimating the necessity for and the value of apprenticeship schools as a mode of training artisans. Whilst giving due weight to some portions of the reasoning of the French reporters, we feel sure that they underrate what, in spite of the partial cessation of apprenticeship, can be and is learnt in the ordinary workshop. We are not sufficiently convinced of the advantages of apprenticeship schools for training ordinary workmen, like those of la Villette and Havre, as compared with the great cost of their establishment and maintenance, to warrant us in recommending their introduction into this country until they have had a more prolonged trial abroad.

It will be manifest from the description we have given of the ordinary elementary and apprenticeship schools in France that, with the exception of the very recent introduction of manual work into the schools of Paris and of the instruction in trades provided in a few cases for a small number out of hundreds of thousands of apprentices, French workmen generally, as distinguished from those employed as foremen or aspiring to that position, have not until now, except as to systematic teaching in drawing, possessed during the school age better instruction than persons of a similar condition in this country. Of the training more especially adapted to foremen we shall speak in a later report.

The question is more complex as regards adult instruction. So far as this is simply elementary, it is, thanks to the improved primary education of children, daily becoming less needed, and therefore of less importance, both in this country and in France. As to the more general instruction of adults in literature and science, it must be admitted that the gratuitous courses of lectures given in all the large towns of France are very valuable. The comparison of this class of instruction with that of a similar character in our own country will be considered in a subsequent report. •

With respect to art teaching, owing to the early training of the children in this subject, the excellent quality of the instruction in the adult

schools, and its gratuitous character, placing it within the reach of the very poorest, the proportion of bona fide working men receiving practical instruction in France is greater beyond comparison than it is with us. On this branch of the subject, also, we shall speak in detail in a further report.

We wish it to be distinctly understood that if we have not in this report made any recommendations for the improvement of the instruction of our own artisans beyond that of the introduction of manual work in some of our ordinary elementary schools, it is not because we are not fully alive to the need of greatly improving their general and technical training, but because we are at present only at the outset of our mission. For the same reason, the instruction of foremen, superior managers, and proprietors of industrial establishments has been entirely excluded from our present report, and we should have refrained from making any report whatever at so early a stage of our inquiry had we not thought it advisable to show how great has been for some time past, and how much more strenuous than ever is now, the endeavor on the part of the French nation to supply the defects of their system of elementary education, and whilst rendering it more efficient to extend it to the whole of the working population, as well as to place within their reach increased opportunities for technical instruction, the former being, it is hardly necessary for us to say, the only sound foundation for any subsequent technical training.

We avail ourselves of this opportunity to render our thanks to the public authorities, to the owners and managers of industrial works, and to the numerous other persons abroad to whom we had occasion to apply for information, for the frank and courteous manner in which it was given to us; and also to acknowledge the prompt and valuable assistance which we received from the members of our diplomatic and consular services in the prosecution of our inquiry.

All of which we humbly beg leave to submit for Your Majesty's gracious consideration.

(Signed)

B. SAMUELSON.
H. E. ROSCOE.
PHILIP MAGNUS.
JOHN SLAGG.
SWIRE SMITH.
WM. WOODALL.

GILBERT R. REDGRAVE,
Secretary.
17th February, 1882.

APPENDIX No. I.

MINISTRY OF PUBLIC INSTRUCTION AND FINE ARTS.

SUMMARY OF FRENCH ESTIMATES FOR PUBLIC INSTRUCTION FOR 1882.

Ordinary budget.

1. Salary of the minister and cost of central administrative staff.....	£29, 164
2. Heating, lighting, liveries, printing, &c., for central administration...	5, 556
3. Superior council and general inspectors of public instruction.....	18, 548
4. General expenditure for administration of public instruction.....	23, 760
5. Academic expenditure.....	61, 082
6. Superior normal school.....	18, 936
7. Faculties at the universities.....	429, 916
8. School of advanced studies (hautes études).....	12, 000
9. Recompenses to the members of the teaching staff and outlay on classic works.....	2, 000
10. National Institute of France.....	28, 310
11. Academy of medicine.....	3, 020
12. College of France.....	19, 883
13. Museum of natural history.....	35, 433
14. Astronomical and meteorological observatories.....	36, 036
15. Instruction in modern Oriental languages.....	6, 224
16. School of charts.....	2, 862
17. French schools at Athens and Rome.....	5, 569
18. National library, ordinary expenditure.....	27, 762
19. National library, extraordinary expenditure.....	2, 000
20. Public library and Algerian museum.....	12, 266
21. National archives.....	8, 188
22. Learned societies and international exchanges.....	6, 640
23. Journal of savants.....	960
24. Scientific and literary subscriptions.....	5, 600
25. Encouragement and assistance to literary and learned men.....	8, 000
26. Travels and scientific missions. Museum of ethnology.....	8, 884
27. Collection and publication of unedited documents relating to the history of France.....	6, 600
28. General cost of secondary instruction.....	18, 120
29. Lyceums and communal collèges.....	388, 032
30. Repayment by way of annuities to the treasuries of lycenms, collèges, and primary schools.....	260, 000
31. National scholarships and repayments.....	92, 000
32. Inspection of primary schools.....	84, 311
33. Normal schools.....	87, 400
34. Primary instruction, salaries, school buildings, encouragement, gratuities.....	868, 544
35. Primary instruction, adult-classes, assistance, and various payments ..	172, 776
Total	2, 796, 372

APPENDIX No. III.

EXTRACT FROM THE "ANNUAIRE" OF PUBLIC INSTRUCTION AND FINE ARTS FOR 1881.

CERTIFICATE OF PRIMARY STUDIES.

Students of the primary schools are permitted, on completion of their studies, to present themselves for examination for the certificate of primary elementary studies (*certificat d'études primaires élémentaires*). This title belongs exclusively to the diplomas conferred by the cantonal commissions, which commissions are appointed by the rectors (of the academies), the names being submitted to them for the purpose by the chief inspectors (*inspecteurs d'académie*) who meet every year, either in the principal town of the canton or in some central commune, previously selected, the primary school inspector of the district being as a matter of course associated with them.

At the appointed date and within the time prescribed by the chief inspector, every master or mistress prepares a statement for each school, giving a list of the candidates of both sexes for the certificate in question. This statement (which must not contain the name of any candidate who is less than 12 years of age on the first of October in the year in which the examination takes place) bears the name, christian name, date, and place of birth, present residence, and signature of each candidate; it is countersigned and certified by the maire and forwarded at the proper time to the primary school inspector.

The examination for the certificate of primary studies is composed of both written and oral tests.

The written tests, which take place with closed doors under the superintendence of the members of the commission, comprise (1) a dictation for spelling, of not more than 25 lines, which may at the same time serve as an examination in writing; (2) two questions in arithmetic, involving sums in calculation and the metric system, with appropriate answers (*solution raisonnée*); (3) a composition of a simple kind (story, letter, &c.). Little girls have, in addition to this, to do some plain needlework under the supervision of a lady who is selected for this duty.

Failure in any one subject excludes the candidate. The maximum number of marks obtainable being fixed at 10 for each test, only those boys are permitted to take part in the oral examination who have obtained a minimum number of 20 marks (in spelling, writing, arithmetic, and composition); while girls must obtain at least 25 marks (in spelling, writing, arithmetic, composition, and needlework).

The oral tests, which take place in the presence of the masters and mistresses, comprise (1) explanatory reading, (2) the analysis of a sentence read out or written on the blackboard, (3) the elements of the history and geography of France, and (4) questions in practical applications of arithmetic and the metric system. Each of these subjects also may be marked from 0 to 10.

The marks awarded for the oral tests are added to those secured in the written examination, and no one is finally certified as being qualified to receive the certificate who has not received at least half the total number of marks obtainable in the two classes of tests; say a total of 40 marks in the case of the boys and 45 marks in the case of the girls.

In addition to these subjects, the examination may include an exercise in outline drawing and questions in agriculture. Mention is made in the certificate of such supplementary subjects for which the candidate succeeds in obtaining not less than 5 marks.

No examination fees of any kind are payable.

(By decrees dated 16th of June and the 24th of December, 1880, and circulars dated 27th September, 1880, and 27th January, 1881.)

APPENDIX No. IV.

MUNICIPAL APPRENTICESHIP SCHOOL OF THE BOULEVARD DE LA
VILLETTE.

REPORT OF THE COMMISSION OF INSPECTION TO THE PREFECT OF THE SEINE.

MONSIEUR LE PRÉFET.

SIR: By a decree, dated the 13th March, 1880, you appointed a commission of inspection in connection with the first apprenticeship school founded by the "Ville de Paris."

You decided upon this step in the belief that this school, which was established to solve a problem of the utmost importance, should receive the most assiduous care from the superior administrative authorities of the department; in order, also, that the problem might be solved in a manner which should justify the hopes of its founders, those of the municipal council which had readily voted the necessary funds, and those also of all persons animated by the patriotic desire of seeing nurseries of first class workers inaugurated.

In your opinion, Monsieur le Préfet, the municipal school of the Boulevard de la Villette should serve as a model for all those schools with which Paris will eventually be endowed if the experiment should prove successful, and for all those which will subsequently be created by the departments.

In order to further the success of this experiment, you decided that a commission, formed of gentlemen possessed of varied qualifications and whose authority on questions of technical education was undeniable, should preside over the new establishment and propose such improvements as would appear requisite for the most favorable solution of the problem.¹

The Commission, thus constituted, set to work immediately.

During the period of nearly seven months that the Commission has been in existence, it has been able to observe how ingeniously the organization of the manual work and the plans for general education have been contrived. The Commission has also taken note of the weak points of the school, both in the practice of the manual work and in the literary instruction. The Commission, Monsieur Le Préfet, herewith submits to you the results of these observations, together with its views concerning improvements which appear advisable.

First of all it is desirable to describe briefly what gave rise to the idea of establishing a municipal apprenticeship school and the purposes which this school is intended to serve.

For some years past all far-seeing persons had recognized the pressing need of founding a system of trade education. The rapid fall in the standard of value of working skill was not yet sufficiently understood, but it was known that generally apprenticeship to the various trades was on a most deplorable footing, both from a technical point of view and also having regard to the morals of the apprentices.

Without going back very far in order to find instances of the great antiquity of the

¹The Commission is composed of Messieurs Nadaud, deputy (president); Gréard, vice rector of the university; Tolain, senator; Metivier and Thorel, municipal councillors; De Montmahou, inspector general of public instruction; Clere, inspector of elementary education; Moutard, professor at the School of Mines; Carré, engineer; Bourdin, late engineer delegate, secretary; and Corbon, senator, reporter.

system of combining the workshop with the school¹ in order to develop at the same time both intellectual capacity and manual dexterity, and confining ourselves to contemporary examples, we may draw attention to the fact that the constitution of 1848 contained in its thirteenth article, amongst other democratic promises, that of the creation of trade instruction. This fact is a strong proof that the desirability was felt at that time of forming schools of skilful workers. Since then universal exhibitions have made the necessity for the practical teaching of handicrafts more apparent than ever. The government under the empire, which was ambitious of inaugurating this teaching, fully understood its importance, but it was reserved for the republic, when once definitely established, to realize the wish of all far-seeing people. Although several other towns have taken steps towards establishing workshop schools, the "Ville de Paris" will nevertheless enjoy the honor of having taken the lead in this movement, the object of which is the integral education of the rising generation of young workmen and an increase in the standard value of our national productions.

We had scarcely recovered from the fearful crisis through which we had passed, and whilst we had still to pay to our invaders the most colossal ransom ever imposed upon a conquered people, when the proposal for the introduction of technical training was formally embodied in a memorial presented to the then prefect of the Seine, M. Léon Say. This was in December, 1871, and the author of the scheme was the director of elementary education of this department, M. Gréard, now vice rector of the Academy of Paris and a member of our commission.

Thanks to the willingness of the authorities at the prefecture and of the municipal council, a piece of land was purchased, containing buildings, which latter, after being hastily converted, enabled the promoters to open the school in January, 1873.

The history of this interesting institution has been written by an eminent author, M. Alphonse Pagès, and is contained in a pamphlet to which we refer those who are desirous of precise information on the origin of the school.² We will merely state that, having opened with 17 pupils, the school contained 111 at the end of the first year, and that now there are 250. There would be many more but for the lack of room to contain them.

The pupils are not admitted until they are thirteen years of age. A certificate of primary studies is required from them.³ The apprenticeship is of three years' duration. During the first year the apprentices pass in succession through the various trades carried on in the establishment. They make a trial of each of them, in order to become acquainted with the general character of manual work before adopting the particular trade best adapted to the temperament and aptitudes of each individual. After this first trial year, the "rotation" having been completed, the pupil, paternally guided by the director of the workshops, chooses the trade he will devote himself to during his apprenticeship, in which the next two years are passed.

During the first two years the pupils pass six hours a day in the workshops and four hours in the school, where they complete, or where they have the opportunity of completing, their elementary education. The pupils in the third year spend eight hours per day in the workshops and two hours in the school.

Such is the mechanism of the institution. There is nothing absolute about it. The time spent in the workshop or in school might be prolonged or curtailed. This is a

¹ From 1725 to 1745 there existed in a village of the Dauphiné a school where the master, assisted by his wife, had introduced manual work, and where the pupils were initiated, according to their tastes, age, and dispositions, into different kinds of industrial as well as agricultural work. Later on this same teacher, being in Brittany, addressed a most interesting memorial to the government of that province to persuade them to establish there the ingenious system of education which he had for forty years so successfully practised in the Dauphiné. For this information we are indebted to M. Jacques de Valsierre.

² *Les écoles d'apprentissage*, by Alphonse Pagès, Librairie des Connaissances Utiles, 43 rue du Four-St.-Germain.

³ See Appendix No. 5.—(TRANSLATOR.)

matter of experience, and the commission accepts for the present as being satisfactory the manner in which the manual and intellectual exercises are apportioned.

Before examining how this twofold plan of education is conducted, let us see what has been said, and long will be said, by way of objection to apprenticeship schools, by opponents of the system who, possessed of the spirit of routine, are very tenacious in their opinions. There are two principal objections made: The first would have it that it is not in a school, but only in the bona fide workshop of a private manufacturer, that the apprentice can "pick up" the skill and knack (*tour de main*) of his trade, because it is only in this latter that he can have the opportunity of constantly watching how the men set about their work, and that nothing could take the place of this current practical instruction.

The other objection urged is that the time passed by the pupil in trying his hand at various trades in order to discover the one for which he is best adapted, is time lost, and that the two following years, during which he is confined to a special trade, are insufficient to enable him to become a tolerably fair workman. To require another year still, they say, would be exacting too much from the parents, who have already made great sacrifices in order to support their children from the age of 13 or 14 years until they are 16 or 17 without their earning anything; and that consequently apprenticeship schools would not produce such results as their founders or patrons expected from them.

Such are the two principal objections. We will now proceed to show that the one is as groundless as the other.

If apprenticeships were now what they used to be formerly, when the trades were conducted on a small scale and the master was himself a workman who took his part with the rest at "the job," aided only by a small number of journeymen, then the first objection would deserve some consideration. In those days the apprentice was frequently the master's own son or relation, or the son of a friend, or perhaps the son or relation of one of the journeymen, and in this latter case, perhaps the most frequent one, he was surrounded by those who were interested in his welfare; he was subjected to few evil influences and he was taught his trade.

This condition of things, however, no longer obtains in the present day. It has disappeared, little by little, in proportion as industry has become more developed. Small undertakings have given place to large ones, small workshops to immense factories. The masters are industrial captains, engineers, or capitalists, whose hands are mostly innocent of having handled a tool. Workmen are no longer the "companions" of the master; they are kept at a distance and subjected to severe restraint. Division of labor often reduces a man's work to one simple operation, to which it would be useless to apprentice a boy. Moreover, the firm does not care to train apprentices, and as a matter of fact the more important works no longer take them. In the large factories or works where boys are employed they are not taken with the object of teaching them a trade, but to make use of them for work of a simple kind, in the character of living machines until such time as iron machines take their place.

Apprenticeships are not of course entirely suppressed; the system is still in existence in these trades in which the small shops have not yet been swallowed up by the larger ones; but even in these small shops the effort to produce work at the lowest possible cost and as speedily as possible, to the prejudice of quality, inevitably leads to division of labor and to a daily increase of specialization, and hence the apprentice very seldom has an opportunity of learning how to turn out a complete piece of work.

One may say then that, with few exceptions, there is an end of real apprenticeship in private workshops. The few remaining apprentices are young laborers, rather than learners, and they grow up as laborers and nothing more.

We will go further and say that if by an impossibility the heads of large industrial establishments imposed on themselves the duty of bringing up apprentices they would have a difficulty in finding practitioners capable of teaching them. Precisely because for a long time past the custom of training apprentices has fallen into disuse, real work-

men who thoroughly understand their trade are fast disappearing. This phenomenon is not peculiar to France; it occurs all over Europe; and it is for this reason that men well versed in matters of industry, in processes of production, and in the value of products are earnestly pressing for the contrivance of nurseries of young workmen.

If apprentices are no longer trained in private workshops, we must train them in the school.

We shall see by and by if it is possible to bring up apprentices, and to bring them up well, in the school; but the objection here raised does not hold good in the face of facts; it simply indicates, on the part of those who use it as an argument against workshop schools, a most extraordinary ignorance of the condition of things which have already been proved a thousand times.

We will here make a digression before dealing with the second objection. We have already referred to the subject of the division of labor. As this is constantly becoming more and more general, it may be asked whether there is any necessity for workmen capable of understanding and finishing a piece of work in its entirety. It may be said that a few foremen would suffice to "cut out" the work for a great number of men working at special parts, and that therefore there is no occasion for anxiety on account of the sparsity of finished workmen.

This is not an opinion invented by us; it is one often expressed. We consider it worthless, and we must say why.

French manufacturers owe their great reputation—a reputation already unfortunately compromised—to products the value of which arises out of the taste and dexterity (*tour de main*) of the workmen. But originality and ingenuity of design disappear when the work has to pass through a number of hands, each engaged only on some small detail.

Such work as this is called in shop language "slop work" (*camelotte, pacotille*). We are now speaking particularly of industries in which the hand and taste of the workman play an important part.

How are we to produce objects of originality and superior taste if we have no workmen capable of imagining and executing the article in its entirety? But even in the engineering trades it is of the greatest importance that a workman should be capable of conceiving and executing an entire machine. In point of fact machinery may yet be applied in numerous ways to human industry. We are, so to speak, only at the commencement of the era of what are known as machine tools, and a host of these ingenious mechanisms remain still to be invented and perfected.

It is an error to fancy that this is the business of the engineer alone. It is a matter of serious disadvantage that the engineer should not be, in case of need, also a practical workman, and, on the other hand, that the practical man should not, to a certain extent, possess the knowledge of the engineer. The theorist who cannot make use of his hands or execute what his mind has conceived frequently falls into error, and is often also incapable of making himself understood by the workmen. Nowhere perhaps so much as in France is the engineer separated so far from the practical workman, and this is much to be regretted. This is why we are so woefully distanced by other countries, particularly by the United States of America, in the invention and construction of machine tools. This fact is beyond dispute; it has been shown at all international exhibitions, and notably at that of 1878 in Paris.

Much might still be said on this part of the question, but it is not our object here to write a treatise on trade instruction, and we think that the observations already made suffice to explain how necessary it is that we should rescue the industrial genius of France from the declivity down which it has allowed itself to be dragged, and lose no time in founding schools where we may educate pupils skilled in the handling of tools and sufficiently endowed with general and special knowledge to enable them to become first class workmen, and thus restore the value of workmanship to its proper level.

Let us now examine the second objection, that which consists in the allegation that

the trials of the first year are so much time lost, and that the two following years are insufficient to constitute an adequate apprenticeship.

In the first place, is it a fact that the first year, which the pupil devotes to discovering his calling and to practising in turn the various trades, is a year lost?

Secondly, is it not an error to suppose that, after the probation during the first year, the two following years are insufficient for a proper apprenticeship to the trade chosen?

As to the first point: Can it be doubted that, in our trade school, the pupil is infinitely better situated for the acquisition of technical knowledge than in the workshop of a private concern? We all know that in the private workshop, if they take apprentices (in the ordinary sense of the word) at all, their first year is spent in more or less disheartening drudgery, which leaves a bad impression on the whole of their working career, and which, at the best, is, in no sense, a serious preparation for the exercise of their trade. If there is a year lost, or worse than lost, for the young workmen, it is assuredly the first year they pass in the private shops; this is incontestable.

In our school, on the contrary, the first year is certainly fruitful. Beyond the fact that he is completing his elementary instruction, the pupil has not, so to say, to steal the secrets of the trade; we make it our duty to teach them to him. He is free from all drudgery and safe from all unhealthy influences. There are, then, as many advantages in passing the first year in the workshops of the school as there are disadvantages of all sorts in spending it in private shops.

This is, however, not all. During the few months of experience which the pupil has had of three or four different trades he has been enabled to acquire some knowledge of the particular processes employed in each of them, and not only will that which he has learnt not be forgotten, but these varied exercises will have opened out his intelligence, enlarged his professional ideas, developed his skilfulness, and emboldened his mind, and they will unquestionably be of great service to him in the exercise of the trade which he finally adopts. Difficulties will embarrass him less; routine will take no hold of him; and he will be enabled all the better to effect improvements and even innovations.

Then if, during a trade crisis, work should fall off in the trade he has adopted, he will not be discouraged like the majority of his fellow-workmen under such circumstances; he will understand, better than they do, how to avert want and its sad consequences; he will take up another trade, one of those that he has already tried, the nearest approach to the one of his choice. For we may pause here to state that it is merely a widespread prejudice that to change from one trade to another is an extremely troublesome and difficult matter; and inferior workmen, those who have not had the benefit of a sound apprenticeship, are those who are most affected by this false notion. It is also a very common opinion that workmen go on acquiring more skill all through their lives. This is not at all the case, or it is only so to a very limited extent. The fact is that, in all trades, the best and most skilful workmen are young men, and they do not gain in skill after a certain age, but are always, in their turn, outstripped by younger men who have had the rare opportunity of a good apprenticeship.¹ This is the rule, and the exceptions that may be brought forward only confirm it. It does not take so long as is generally supposed to create a good workman, provided that he has fallen into the right groove; that is to say, that the trade he has chosen is suitable both to his temperament and to his aptitudes, and that he has not at the outset been perplexed by imaginary difficulties and fallen into bad habits.

We will take advantage of this opportunity to remark that one of the essential conditions of good technical training is to assure the pupil that he will easily overcome the difficulties which appear formidable to him at first sight. The very reverse of this is

¹A discussion took place at a meeting of the commission on the question here raised. It was unanimously agreed that, in point of fact, a time arrives when the workman of reputed ability progresses no further, although he may still be in the prime of life. The reporter was inclined to fix 10 years as the limit of improvement. He was informed that in certain trades the period might extend to 5 or even 10 years longer.

generally done in private shops. The man who has with difficulty learnt to work more or less well is naturally inclined to impress on the apprentice the fact that the trade is a difficult one, and that a thorough knowledge of it is rarely attained. It is exactly the opposite course which should be followed in teaching all branches of human knowledge. To intimidate the mind and to exaggerate difficulties is a very common habit, particularly in workshops. This habit will certainly be introduced by the workmen instructors into our apprenticeship schools. We have some reason to believe that it has already been introduced into the existing school, but the commission will take the necessary measures to eradicate it.

We may therefore conclude that, after the very necessary "rotation" of the first year, the two following ones should suffice to make a good workman, it being always understood that the pupil has been intelligently grounded in the practice of his chosen calling. Doubtless it will still be necessary for him, when he finds himself in the outside workshop, to improve himself in the handling of tools and to adapt himself to the special practice of the firm for whom he is working. This may soon be accomplished, and in less than two years with his preparatory training, which is lacking to the majority of his fellows, he will become a first class workman. If it should be otherwise, it will be because the instruction in the school has been badly conducted. It behooves us, therefore, to see that it is good, so that pupils may do credit to the school when they leave, and gradually elevate, from an industrial point of view, the standard value of handicraft work.¹

Now that, as we believe, we have answered the objections which ignorance or the spirit of routine oppose to the formation of apprenticeship schools, let us see how the matter stands, and ought to stand, with regard to the ordinary school teaching at the school of the Boulevard de la Villette.

The late director of elementary education, M. Gréard, to whom the initiative of the founding of the above establishment is due, and the present director, M. Carriot, are entirely agreed as to the necessity that the class instruction should be purely and simply a continuation of that of the elementary school. They, as also all the members of the commission, are of opinion that, if the scope of the education of the pupils were enlarged by the introduction of certain scientific studies, there would be a risk of the results being worthless, both to their intellectual and their working career. The pupils of our school are not sufficiently prepared for instruction of a scientific character and the long hours they must necessarily pass in the workshop, together with the exertions they are bound to make, both of body and mind, ill dispose them to benefit by dry lessons, which, moreover, belong to the domain of what is styled "higher education."

Now we find that too much has been attempted in this direction and that the limit has been exceeded; so much so, indeed, that a great portion of the school instruction "passed over the heads" of the pupils. This is a more serious fault than would appear at first sight. It is not only teaching thrown away, but also precious time wasted. The most serious part of the mischief, however, is its effect on the behavior of the pupils. Comprehending nothing or very little of the meaning of the lessons, they gradually habituate themselves to wasting time, and they waste it in stealthy play; then, gradually losing all respect for the master, they worry him by more or less offensive tricks. The bad practice acquired in one class is followed by the others. Superintendents are required to maintain order, and restraint becomes necessary where sympathetic attention from the pupil to the master's word should reign. On the other hand, this necessity for superintendents for the maintenance of order is a certain sign that the teacher is unable to interest the pupil in his lessons.

The commission took a very serious view of this condition of things, of which it only had information at a late period, and the bad effects of which the former authorities of

¹ The training is already bearing good fruits, for the pupils easily find employment at good wages; two or three have become foremen, and the managers constantly receive requests for workmen and letters of congratulation.

the school appear not to have understood. The commission referred the matter to the present director of elementary education for the department, to whose service it belongs, and also to his predecessor, to whom is due the merit of having proposed the foundation of the establishment on the Boulevard de la Villette. Both these gentlemen, without the least hesitation, expressed their opinion that the school instruction required to be remodelled. M. Gréard and M. Carriot are quite agreed with the commission in saying that the lessons in the classes should only be simply a continuation of the elementary education.¹

As respects the bad habits which have been acquired, it is upon the new director of the school that the delicate and serious duty devolves of inspiring the pupils with the necessity of profiting by their lessons and of sympathetic respect for the masters. Much depends upon these latter to facilitate this task for him. It is absolutely necessary that the system of surveillance that has been organized for some two or three years past should become superfluous, and the commission looks to the new director with every confidence to effect this.

Whilst wishing to see the teaching reduced to the proportions desired by the founders of the school, and which are perfectly reasonable, the commission is nevertheless desirous that the pupils should receive instruction of a nature to excite their curiosity upon scientific subjects, and to make them feel the need of general information on history, geography, the laws of their country, &c., and on all those subjects which would complete the elementary education and fortify the mind. The commission is anxious that the director should himself deliver, and, when desirable, ask other persons to give familiar lectures to the lads on all subjects essential to an intelligent and healthy democratic education. The new director, M. Chabrier, is perfectly disposed to do this, and the authorities on whom he depends will certainly give him every support.

As regards technical teaching, this is well conducted by the director of the workshops, M. Bocquet, and the commission has every confidence that he will go on improving. The commission especially requests all members of the staff engaged in the education of the school to abstain from pedantic dryness in lessons of all kinds, from coarse language, and from everything like harshness. The essential virtues of our directors, teachers, and foremen should be patience, kindness, and friendly demeanor; in a word, all that is appreciated by children and which commands their good will and sympathy. If we wish to be loved by the young we must show them that we love them. Thus we enter on the fruitful path of education by making it attractive. It is above all in our trade schools that this mode of instruction should be adopted. It shall be adopted. It is one of the conditions upon which their success depends.

Another element of success, to which the commission attaches the greatest importance, is that the apprentices of the third, even those of the second, year should, as far as possible, turn out objects that are of use.

Practical instruction to be in earnest cannot be independent of actual production. Doubtless, in a school of very young people, one can only exercise them at first in the production, more or less imperfect, of things which are of no use; but we must, as far as possible, stimulate the zeal and the desire of these young people to do well, in exercising them in the manufacture of things which can be put to some use.

We ask the directors of the school always to bear in mind that the object is to produce good and ready workmen; we say intentionally both good and ready, for one may learn to work very well but slowly, as also one may learn to produce with rapidity but imperfectly. To solve the question of the school workshop the two qualities must be united: "to work quickly and work well." The desired end will not be attained if our young men, on leaving the school workshops to enter those of private firms and to be employed as journeymen, do not work better and as quickly as ordinary workmen. If needful let

¹ The majority of the commission proposed to suppress the English classes, as having so far produced no results of importance. By the desire of the school authorities, however, the commission will postpone its decision on this point until after a new trial had been made.

us concede them a few months' practice to take a firm footing as workmen, and the requisite result must be obtained or else they have been badly trained.

As regards the two years' practice, of which we have already spoken, we wish it to be understood that we consider those two years should suffice to make first class workmen. But is this result possible? Can it be obtained? The commission is convinced that it can, but the possibility of obtaining these good results depends strictly on the employment of pupils on work which has been commissioned and is consequently intended for use.

Protracted and conclusive experiments have been made on the practice of teaching by means of work on objects not intended for use. The National Schools of Arts and Trades (Écoles des Arts et Métiers) are not productive. However, the superior commission instituted by the ministry of commerce and agriculture to reorganize the education in these schools recognized that it was a grave oversight not to exercise the pupils on work destined for actual use. No doubt it is possible to accustom them to turn out a piece of work to perfection, but the execution is sluggish and spiritless. In these schools time is of no value. The foremen have no motive for urging the pupils to make haste, as this would oblige them to hurry themselves. The execution is the only point, which is considered quite irrespective of cost.

For such schools as the "Arts et Métiers," which turn out foremen or managers, and not workmen properly so called, this objection, although it is a serious one, and one which has frequently been denounced, is not productive of such disastrous consequences for the future of the pupils.

But the evil is far more important when it concerns pupils who are intended to become workmen. If they do not learn the value of time in the school; if they have acquired the habit of working slowly; if they have not been incessantly stimulated by foremen who are alike interested in, and responsible for, the rapidity as well as for the quality of the work, they will inevitably retain, in their career as workmen, the habits of dilatoriness which they have contracted as pupils.

We cannot depend on the foremen if they are not alike responsible for as well as interested in the good and rapid execution of the work. Without this condition they will take things easily, and will not, either by word or example, exercise the necessary pressure on their pupils. It would be a very credulous person who would believe that it can be otherwise.

As respects the pupils themselves, they will have no heart in their work unless it be ordered and actually used. They must even be rewarded and pecuniarily recompensed.

Without this condition we may indeed succeed in getting work properly done by the boys, but they will not put their energies into it; they will work sluggishly, and later on, when they become workmen, they will earn their living scantily and with difficulty.

These considerations alone should be decisive, but there are others to be taken into account upon which we may lay great stress.

We must first remember that the families from whence these children are drawn are many of them not well off, not to say poor. It is very hard upon these people to require them to maintain young people up to the age of 16 or 17, who bring nothing home and require as much food as adults. The parents make these sacrifices in the hope that their children may become first class workmen; we must not disappoint their hopes.

There are others who cannot always maintain their children in this way until the end, and who are obliged to take them away prematurely. This is in every respect very regrettable, and would not happen if the apprentices brought home some small wages after the first year or 18 months.

If the school produced marketable goods it would receive payments.¹ The payments

¹ Whenever the school has received payment for a piece of work ordered, it has been compelled to pay in the amount to the municipal treasury, which charges nothing to the school for the cost of the raw materials it employs. The commission has been informed that it would give rise to certain objections if the school were turned into a kind of factory selling goods at a profit. It would perhaps be better and easier to open a credit for it on the municipal treasury for its expenses.

would not only afford the means of encouraging the pupils by making them some pecuniary recompense, and thus set their families at greater ease, but we could also increase the number of foremen, among whom there would necessarily be emulation, and whose example would be profitable to the scholars.

We may add that another advantage would consist in the reduction in the general expenses of the school, for if the cost were reduced there would be less hesitation in starting other schools.

The school of la Villette was not conceived and started for the benefit of some two or three hundred children, but, as was stated at the outset, it was intended to serve as a model for all those others which it is necessary to create. We must remember that there are, perhaps, in Paris alone, thirty or forty thousand youths, or more, who would require trade instruction, and if we do not endeavor to discover some plan of making these schools as inexpensive as possible only a small number will be established, the children who are received in them will be a privileged few, and the problem would remain unsolved.

Fortunately everything is in favor of the adoption of the measure to which we have drawn attention. To produce, whilst imposing upon ourselves the duty of making things well and quickly, upon the same terms as private industry, but without unfair competition, is the means of creating 'enthusiasm (entrain) among the pupils, of giving them a recompense, of lessening in some degree the burden on their parents, and finally of reducing the general outlay. How is it possible to hesitate?

But there will be no hesitation. The authorities at the prefecture will certainly be of the same opinion in this matter as the commission, and will have but to say a word to inspire a portion of the work required for the service of the Ville de Paris being ordered at our school and paid for as it would be to a private firm. The director of primary instruction of the Seine, M. Carriot, having been consulted, is firmly convinced as to the necessity of turning out salable work. This has also for a long time past been the conviction of the late inspector of the school, M. de Montmahou, who, under the inspiration of M. Gréard, so largely contributed to its foundation and organization. Let us add that we may rely upon the coöperation, activity, and intelligent zeal of the chief of the workshops, M. Bocquet. Finally, the new administrative director, M. Chabrier, has no more sincere desire than that of realizing the project of making the school a productive one.

The commission has therefore every confidence that the problem will be satisfactorily solved, and that the first school for apprentices founded by the Ville de Paris will be an excellent model for imitation.

For the commission.

The Reporter, A. CORBON (Senator).

P. S.—This report was in the press when the reporter had the opportunity of seeing at Havre a municipal apprenticeship school which had been established there for more than twenty years, and which had been admirably reorganized. It is based on the best plan, is perfectly directed, and is giving the most satisfactory results. The city of Rouen likewise possesses an excellent apprenticeship school. Rheims has also a school well worthy of interest, but there the object is rather to make capable foremen than skilful workmen. Similar establishments exist at Lyons and in a number of other towns, and others are in course of formation.

APPENDIX No. V.

REPORT TO MONSIEUR LE SÉNATEUR, PRÉFET DE LA SEINE, ON THE
ESTABLISHMENT OF APPRENTICESHIP SCHOOLS.By H. TOLAIN, *Senator*.

MONSIEUR LE PRÉFET.

SIR: This (second) subcommission was appointed to examine into the question of apprenticeship schools, and they unanimously recognized the necessity for establishing these useful institutions.

Various causes have, since the year 1789, successively contributed to lower the standard of technical knowledge and of manual dexterity among workmen. Formerly the classes organized by each trade association, and the execution of certain "masterpieces" which were required both from the journeymen and from the master, constituted a system of true technical instruction, which, however, disappeared with the Revolution.

In some trades, it is true, the status of "journeyman" survives, but it has been and still is steadily on the decline; industrial changes and facilities of intercommunication are gradually tending to its total abandonment throughout France.

Division of labor, meanwhile, has become more developed every day, increasing the number of "specialties," until each operation is reduced to a trade of itself. Finally, the steam engine has conducted to the establishment of large factories, where the machine tool plays the most important part, machine work gradually replacing hand labor and transforming the artisan into a specialist and the workman into a laborer. Such, then, are the causes which, to the great regret of our manufacturers, are steadily diminishing the numbers of skilful and intelligent workmen in all branches of industry and art manufacture.

Again, the workshops where private industries are conducted no longer, except in a few rare instances, adopt the system of a true apprenticeship. The majority of manufacturers have given up taking apprentices; the lads they employ are set to a special class of work, often of the most insignificant kind, receive remuneration from the first, and by mutual consent of the parents and employer the contract of apprenticeship is abandoned for one of hire.

A revolution of this nature in the methods of production threatens above all the prosperity of French industry, and more particularly the welfare of that of Paris.

Among the trades and handicrafts embracing art applied to industry and to objects of luxury, owing to the applications of science and the employment of machine tools, the articles produced assume a uniformity of character which diminishes in a marked manner their artistic value and facilitates piracy and foreign imitation.

The Germans, the Belgians, the Americans discover by means of new systems of working, and by the aid of improved tools, a means of appropriating to themselves, with little expense, patterns the production of which has often been very costly to our manufacturers.

These disadvantages are equally serious from a moral point of view. The workman, deprived of the most noble part of his calling (the creative portion of the work being from henceforth reserved for the engineer and the artist), his own ideas dispensed with, reduced to mere imitation, and condemned to labor of the most mechanical kind, falls by degrees into a species of mental sloth, which renders him unfit for any intellectual effort. Labor soon becomes to him subjection to an aimless toil, from which he too frequently seeks to escape.

In view of this condition of affairs, the commission recognized that what was needed was not a system of technical education in favor of a privileged few, destined to beco

foremen or managers of works, but to raise the standard of theoretical and practical technical knowledge among all classes of workmen.

The commission, having in view a generalized system of education applicable to both boys and girls, had to consider the financial aspect of the question. Doubtless it is the business of the municipal council to remove the inherent difficulties in the way of establishing new institutions, in accordance with the state of its finances; but notwithstanding the great resources of the city of Paris, it is evident that we must proceed gradually, and the method to be adopted is not a matter of indifference.

In the first place, we were enabled to establish the fact that the various industries carried on in Paris may be divided into two great categories, viz, parent industries and special industries. It is certain, for instance, that, for working in wood and iron, a systematic education, both theoretical and practical, would give to a lad leaving a municipal apprenticeship school, such as the school of La Villette, the opportunity of following several trades and specialties; whilst on the other hand workmen in such important industries in the clothing trades as tailors, shoemakers, hatters, &c., are confined to their own respective special branches.

Now it is more particularly in the parent industries, comprising various trades or specialties having numerous points of resemblance, the work in which is of a similar character and renders necessary, to a great extent, the same class of tools, that the system of apprenticeship is gradually disappearing, whilst employers are powerless to remedy the evil, however sincere may be their desire to do so. For these great industries, the only means of raising the standard of technical knowledge is the establishment of apprenticeship schools.

With these facts before us, a difficulty, however, still remained to be overcome. So long as hand labor, or, speaking more accurately, the handling of the principal tools, forms no part of the education given in elementary schools, the apprenticeship schools will, in a great measure, be recruited in a haphazard way, since no opportunity will have been afforded for discovering the natural aptitudes of the pupils and determining their future vocations. Thus the education, however well organized, will not give such results as might otherwise reasonably be expected.

Without such preparation it is impossible to discover whether the pupil is specially fitted for work requiring precision or taste, for trades necessitating mathematical knowledge or artistic feeling. This difficulty is destined to be overcome by degrees, in proportion as manual work becomes extended in the workshops annexed to elementary schools (and by this means we shall certainly be able to shorten the term of apprenticeship by one year); this difficulty, however, must be encountered at the beginning, and may give rise in some minds to doubts as to the real value of the education to be obtained in apprenticeship schools.

Without departing from the principle already laid down, the commission proposes to group together in the same apprenticeship school a certain number of trades; the programme of the school, whilst giving the same instruction during the first year to all the apprentices, would, in the second year, enable them to apply themselves specially either to works of precision or to those requiring artistic taste.

Inspired with this idea, the commission proposes, by way of example, to establish an apprenticeship school for the furniture trades in the Faubourg St. Antoine, which would produce workers in wood who, according to their natural aptitudes, would take up either the trade of a carpenter, a cabinet maker, upholsterer, wood carver, inlayer, &c.; and workers in iron, who would become locksmiths, men skilled in metal work for cabinet makers, and artistic lock makers. This example we consider sufficient to indicate the object to be aimed at with regard to each large branch of Parisian industry, viz, the grouping together of trades, which, at the commencement of the apprenticeship, would require the same theoretical and manual instruction, and would permit of the distribution, by successive selections of the apprentices in accordance with their aptitudes, amongst

the trades which involve more especially the knowledge of science or of art. Such is the system which the commission proposes to adopt for the parent industries.

It remained to determine what should be the conditions of admission to the new establishment. It was unanimously resolved that the admission should be absolutely free. A question then arose concerning the necessary qualification. Two plans were proposed: the first was that only those pupils should be admitted to the schools who held a certificate of primary studies; the second only required the student to pass a special examination of a very elementary character.

Is it, indeed, certain, asked the partisans of the examination plan, that the certificate can be regarded as a guarantee of capacity for the exercise of a handicraft? Assuredly not; all the faculties do not follow the same general groove. Although there may be some so constituted that they can do nothing without having first mastered the reasons for their actions, there are many, in fact by far the greater proportion, who should begin by practice and not by theory. This is especially true in matters of education, where we often proceed from sensations to thoughts, from particular facts to general laws, to return later from the rule to its application.

To require the certificate of primary studies would be to limit the number of competitors, and to reserve these new schools for the children of the less needy classes, for those whose parents have been able to keep them at the elementary schools until they obtained their certificate.

All men, however, who had specially interested themselves in the question of elementary education were unanimous in declaring the beneficial results arising from the system of certificates. If the certificate were not made obligatory for admission into the apprenticeship schools, competent judges feared that the spirit of emulation would be weakened. That this distinction is a powerful stimulus to exertion is proved by the fact that the number of certificates distributed yearly is always increasing. These reasons appeared conclusive, and the obligatory production of the certificate was adopted by the commission.

According to the calculations of a member of the commission, M. C. Lucas, an architect who is fully competent to form an opinion, and who has devoted himself with the utmost attention to this question, it appears that the cost of establishing an apprenticeship school (without reckoning the site) would amount to a sum varying from 72*l.* to 80*l.* per apprentice, according as the number of apprentices varied from 100 to 300. It is necessary to observe that in the opinion of the commission, and according to Mr. Lucas's plans, the class rooms and amphitheatres could be so arranged as to accommodate a number of students attending evening classes double that of the apprentices.

Three special reports appended to the present one, concerning the three schools for boys which the commission proposes to establish, contain detailed and precise information relating both to the programme to be followed and to the apparatus required. From these it would appear that for the supply of both large and small tools an average outlay of from 2*l.* to 2*l.* 8*s.* per apprentice would be necessary, according to the trade. Finally, the accounts of the school at la Villette show that the annual expenditure will amount to 10*l.* per apprentice.

As regards special trades the commission is of opinion that the manufacturers should themselves take the initiative, and it observes with satisfaction that in several industries the employers have not awaited its advice, but have in some instances already established, or are ready to establish, workshops for apprentices, while others are engaged in organizing classes to supplement the practice obtained in the workshop with theoretical instruction. In such cases, after having taken into consideration the programme adopted by the founders and after having examined the guarantees given for the organization of a sound apprenticeship, the municipal council might come forward with a grant, on condition that its supervision were accepted and made efficacious and that the apprentices

were selected from among the pupils who had passed through the workshop attached to the elementary school.

In the case of schools for boys, the commission has confined its labors to three schemes. It would, indeed, have no further interest in continuing its inquiries if the municipal council were not to agree in principle to the proposed system.

The first would be a school of furniture and locksmith's work, situated in the Faubourg St.-Antoine, comprising workshops for carpentry, cabinet making, inlaying, chair-frame making, wood carving, builders' ironwork, cabinet lock, artistic lock making, &c. (Report of M. Cougny.—Appendix A.)

The second would be a school for engineers and wood workers, to be established on the left bank of the Seine, after the model of the school of la Villette, but with certain additions which would permit of a larger field of instruction. These additions would comprise stone cutting and working, timber construction, foundry work, also iron and tin plate working, roofing, and plumbing; which would make of this school a thorough apprenticeship school for the building trades. (Report of Mr. Henry Lepaute.—Appendix B.)

The third, to be situated in the centre of Paris, would combine the following specialties: Scientific instruments, optical and mathematical instruments, telegraphic apparatus, small machinery, clock making, surgical instruments, &c. (See Mr. Bourbouze's report, specially relating to scientific instruments.—Appendix C.)

The commission would have accomplished but half its task if it had not considered the question of apprenticeship schools for girls; but as women's work does not present such diversity and so many complications as men's work, Messieurs E. Ferry, de Heredia, Marienval, and Charles Lucas, who have especially occupied themselves with this question, have drawn up one general programme which might be adopted in various quarters of Paris. (See Appendix D, data relating to the apprenticeship school for girls, collected by M. Charles Lucas.)

The commission, as you will perceive from its report, wishes to make this apprenticeship school a school also for domestic training. Girls going into workshops at an early age accustom themselves afterwards only with much difficulty to domestic duties, and further, owing to the want of elementary knowledge of these subjects, they are unfitted to undertake them. We hope that the programme proposed will improve this condition of things.

The educational authorities (*direction de l'enseignement*) have transmitted to us several other schemes for the establishment of apprenticeship schools; but, as they differ too widely from the plan adopted by the commission we have, notwithstanding their undoubted merit, been unable to recommend them.

The same may be said of the private workshops for which a grant was asked from the municipal council.

In concluding, we have to tender our thanks to the officers of public instruction, who, by their intelligent zeal, have, in conjunction with the municipal council, succeeded in establishing the first apprenticeship school of the city of Paris, viz, the municipal school for apprentices in the Boulevard de la Villette. This school, like all new institutions, encountered certain difficulties at the beginning, which were fortunately overcome.

The experience thus acquired ought to be made use of in establishing the new institutions, and we may therefore add the following remarks:

The majority of the children going into the apprenticeship schools will belong to parents with large families. Under these circumstances, good-will alone on the part of the parents will not suffice to maintain the apprentice for three years without any remuneration whatever. It happens too often that a good apprentice belonging to a poor family may be compelled to quit the apprenticeship school at the end of the first or of the second year, that is, as soon as he has received sufficient instruction to enable him to earn something at a trade.

Industry would in this manner be supplied with imperfectly trained workmen in spite

of the considerable sacrifices undertaken by the city of Paris. For these reasons, therefore, and prompted by the experience gained at the school of la Villette, the commission deem it desirable to point out how the evils of a premature withdrawal from the apprenticeship school may be averted.

From the beginning of the second year the school might furnish gratuitously to all, or to a certain number of the apprentices, the mid-day meal, and in the third year add a small weekly remuneration. If the resources of the school permitted of this, a savings bank book or a fixed sum might be allowed to the apprentice, either to assist him till he can earn his living in a factory or to enable him to provide himself with tools in the cases where this expense falls upon the workmen.

If the ideas herein set forth should be of value to the development and progress of industry, the commission, Monsieur le Préfet, will have to thank you sincerely for the opportunity that has been afforded to it of being useful to its country.

(Signed) H. TOLAIN, *Senator*.

NOTE.—The special reports, plans, and estimates for the four schools above referred to will be annexed to a subsequent report of the Royal Commission on Technical Instruction.

APPENDIX No. VI.

FACTORY LAW OF MAY 19, 1874, ON THE WORK OF CHILDREN AND GIRLS, WHO ARE MINORS, EMPLOYED IN INDUSTRIAL OCCUPATIONS.

The National Assembly has adopted the law in the manner following:

SECTION I.

Age of admission — Duration of work.

ARTICLE 1. Children and girls, who are minors, can only be employed upon industrial work in manufactories, mills, works, mines, workshops, and ateliers under the conditions laid down in the present law.

ART. 2. Children cannot be employed by manufacturers in factories, mills, works, ateliers, or workshops before the age of 12 years completed.

They may, however, be employed from and after the age of 10 years completed in certain industries, specially determined by a public administrative regulation duly enacted by the superior commission appointed in the matter hereinafter set forth.

ART. 3. Children, until the age of 12 years completed, cannot be employed for a period of more than six hours daily, divided by a proper interval of rest. Above the age of 12 they may not be employed for more than 12 hours daily, divided by intervals of rest.

SECTION II.

Night work — Work on Sundays and holidays.

ART. 4. Children cannot be employed on night work of any description until they have attained the age of 16 years completed.

The same prohibition is applicable to the employment of girls who are minors, from 16 to 21 years of age, but only in works (usines) and manufactories.

All work between 9 o'clock at night and 5 o'clock in the morning is regarded as night work.

However, in case of stoppage caused by an accidental interruption of an unavoidable kind, the above prohibition may be temporarily suspended, for a period determined by the local commission or by the inspector hereinafter appointed, but without conveying the power of employing children of less than 12 years of age on night work.

ART. 5. Children under 16 years of age and girls under 21 years of age cannot be employed in any kind of work for manufacturers on Sundays and the legal public holidays, not even for arranging and cleaning the workshops.

ART. 6. Nevertheless, in works carried on both by day and night (*à feu continu*), children may be employed on works of necessity (*travaux indispensables*) at night time or on Sundays and holidays.

Works in which this will be permitted and the period of time while they may be carried on will be determined by public administrative regulations.

This work will, under no circumstances, be authorized, excepting for children of at least 12 years of age.

Besides which, they must be allowed sufficient time and liberty to attend to the performance of their religious duties.

SECTION III.

Underground work.

ART. 7. No child can be permitted to be employed in underground workings in mines, pits, or quarries before the age of 12 years completed.

Girls and women cannot be employed in such works.

The special conditions imposed upon the work of children from 12 to 16 years of age employed in underground workings will be determined by public administrative regulations.

SECTION IV.

Primary instruction.

ART. 8. No child under 12 years of age completed can be employed by any master unless his parents or guardian prove that he actually attends a public or private school. Every child admitted before 12 to work in a factory must, until he attains the age of 12, attend a school during certain hours in which he is not at work.

He must receive instruction for two hours daily at least if a special school is attached to the manufactory.

The attendance at school must be certified by means of the production of a presence sheet (*feuille de présence*) prepared by the teacher and forwarded each week to the employer.

ART. 9. No child before the age of 15 years completed can be permitted to work for more than six hours each day, unless he is able to prove, by the production of the certificate of the teacher or primary inspector, countersigned by the *maire*, that he has acquired a sufficient amount of primary elementary instruction.

This certificate will be furnished gratuitously on a free form (*papier libre*).

SECTION V.

Supervision of children.—Statutes for workshops.

ART. 10. The *maires* are bound to furnish to the father, mother, or guardian a little book (*livret*) bearing the name and surname of the child, the date and place of his birth, his residence, and the time during which he has been at the school.

Managers of factories or employers must enter in the *livret* the date upon which the child was first employed in the factory and the date of leaving. They must also keep a register, which must contain all the matters enumerated in the present article.

ART. 11. Managers or employers are bound to exhibit the text of the present law, and the regulations of public administration which relate to its execution, in every workshop.

ART. 12. Regulations of public administration will determine the different sorts of work which, owing to their dangerous character or in consequence of overtaking the children's strength, are forbidden to children engaged in factories.

ART. 13. Children can only be employed in manufactories classed in the official list among the unhealthy or dangerous establishments upon the special conditions laid down in the regulations of public administration.

This prohibition shall be generally applicable to all occupations wherein the workman is exposed to processes or emanations which may be prejudicial to his health. Until the issue of these regulations it is forbidden to employ children of less than 16 years of age, first, in factories in which explosive materials are dealt with, and in those in which the manufacture of detonating compounds is carried on, such, for instance, as gunpowder, fulminating powder, &c., and all other substances exploded by a blow or by contact with flame; second, in factories designed for the preparation, distillation, or manipulation of corrosive substances or those of a poisonous nature, and such as evolve deleterious or explosive vapors.

The same prohibition applies to dangerous or unwholesome processes, such as the sharpening or dry polishing of objects made of metal, of glass, or crystal; the stamping

or friction of the dry powder of carbonate of lead in the manufacture of red lead; the dry polishing of enamels, containing oxide of lead as a base, in the manufacture of so-called "muslin glass;" the silvering of mirrors by means of mercury; gilding by means of mercury.

ART. 14. The workshops must be maintained in a state of constant cleanliness and be suitably ventilated. They must present all the conditions of safety and salubrity necessary for the health of the children.

In factories with machine motors the wheels, the belts, the gearing, and all other apparatus, in any case in which it has been proved that they present any apparent danger, shall be so separated from the workpeople as only to be approachable for the purpose of attending to them. Well-holes, traps, and openings in floors must be properly covered.

ART. 15. Employers and chiefs of establishments must further see to the maintenance of good morals and the observance of public decency in their workshops.

SECTION VI.

Inspection.

ART. 16. Fifteen divisional inspectors shall be appointed to insure the carrying out of the present law. The nomination of these inspectors shall be made by the government from a list of names presented to them by the superior commission, instituted in the manner hereafter described. This list must contain the names of three candidates for each vacancy.

These inspectors shall be paid by the state.

Each divisional inspector shall reside and exercise his duties in such one of the territorial circumscriptions as is specified in the regulations of public administration.

ART. 17. Such candidates shall be qualified to hold the office of inspectors who possess the title of state engineer or the diploma of a civil engineer; also the pupils who hold the diploma of the Central School of Arts and Manufactures or of the School of Mines.

Those also shall be eligible who have already served for a period of three years at least as inspectors of the work of children (in factories) or who can prove that they have directed or superintended an industrial establishment employing not less than 100 hands for five years.

ART. 18. The inspectors have the right of entry into every manufacturing establishment and into ateliers and workshops. They inspect the children, and may request to be shown the register prescribed under article 10, the livrets, the presence sheets at school, and the regulations of the factory.

Any breach of the regulations shall be certified by the written reports (*procès-verbaux*) of the inspectors, which shall be evidence until proof is forthcoming to the contrary.

When it relates to underground work, any breaches of the rules shall be concurrently certified by the inspectors or by the "mine guards" (*gardes-mines*).

The formal reports shall be prepared in duplicate, one being sent to the *préfet* of the department and the other being lodged in court (*déposé au parquet*).

In any case in which the inspectors perceive that any cause of danger or unhealthiness exists in an establishment or factory they shall take the opinion of the local commission, appointed as hereafter set forth, respecting this dangerous or unhealthy condition, and they shall record this opinion in a written report.

The above mentioned proceedings do not abrogate the procedure of common law as respects the evidence and the prosecution for offences against the present law.

ART. 19. The inspectors shall forward a report each year to the superior commission, appointed as hereafter set forth.

SECTION VII.

Local commissions.

ART. 20. Local commissions shall be appointed in each department, whose office shall be unpaid. They are charged, first, with watching over the execution of the present law; second, with the management of the inspection; third, with the preparation of re-

ports to the *préfet* of the department respecting the staff and the execution of this law, which reports shall be transmitted to the minister and communicated to the superior commission.

For this purpose the local commissions shall visit the various industrial establishments, factories, and workshops. They may, if they think fit, take with them a doctor.

ART. 21. The general council will determine the number of the local commissions in each department, and the area under their charge; they must establish one at least in each *arrondissement*; they will establish them besides in the chief industrial and manufacturing centres and wherever they may judge it necessary to do so.

The general council may also name a special inspector, paid by the department; this inspector must in all cases act under the instructions of the divisional inspector.

ART. 22. The local commissions must be composed of not less than five nor more than seven members, named by the *préfet*, from a list drawn up and presented by the general council.

On each of such commissions there should, if possible, be a government engineer or a civil engineer, an inspector of primary instruction, and a mining engineer in mining districts.

The commissions are appointed every five years; the retiring members are eligible for reëlection.

SECTION VIII.

Superior commission.

ART. 23. A superior commission, composed of nine members, whose office is unpaid, is established to act with the minister of commerce; this commission is nominated by the President of the Republic; it is charged with (1) watching over the uniform and vigilant execution of the present law; (2) presenting its advice respecting the regulations to be made and generally on the various questions relating to those under the protection of the act; (3) lastly, with the preparation of the list of candidates to be presented for nomination as divisional inspectors.

ART. 24. Each year the president of the superior commission will present a general report to the President of the Republic on the results of the inspection and on the facts relating to the execution of the present law.

This report must be published in the official journal during the month in which it is presented.

The government will each year give an account to the National Assembly respecting the execution of the law and the publication of the regulations of public administration designed for its interpretation.

SECTION IX.

Penalties.

ART. 25. Manufacturers, directors, or managers of industrial establishments, and employers who have infringed against the provisions of the present law and of the regulations of public administration relative to its execution will be summoned before the correctional tribunal and punished with a fine of from 16 to 50 francs.

The penalty shall be payable for as many times as there may have been persons employed contrary to the law, but without exceeding a total penalty of 500 francs.

In any case, however, the penalty shall not be enforced, providing that the manufacturer, director, or manager of the industrial establishment, or the owner of the workshop, shall prove that the infraction of the law has been due to an error caused by the production of birth certificates, *livrets*, or other certificates containing false particulars or belonging to some other person.

The provisions of articles 12 and 13 of the law of June 22, 1854, relating to the *livrets* of workpeople, shall, in this case, be applicable to the authors of false statements.

The heads of manufacturing concerns are civilly responsible for sentences against their managers or agents.

ART. 26. If there is a repetition of the offence, the manufacturers, the directors, or managers of industrial establishments and the masters of workshops shall be condemned to pay a penalty of from 50 to 200 francs. The whole of the combined penalties, however, may not exceed a total of 1,000 francs.

It shall be considered a repetition of the offence if the offender has been sentenced for a first infringement of the law or of the regulations of public administration which relate to its execution within the twelve months preceding the case for which he is again tried.

ART. 27. The posting up of a notice of the sentence may, according to circumstances but only in case of a second offence, be ordered by the correctional police tribunal.

The tribunal may likewise order that at the same time a notice of the sentence shall be inserted in one or more local papers, at the expense of the offender.

ART. 28. Proprietors of industrial establishments and masters of workshops who shall place any obstacle in the way of the inspectors to prevent them in the accomplishment of their duty, or who shall impede the members of commissions, doctors, engineers, or experts who may be appointed to visit the works or to certify on any subject shall be punished with a fine of from 16 to 50 francs.

ART. 29. Article 463 of the penal code is applicable in case of sentences pronounced in the execution of the present law.

The total amount of the penalties recovered by condemnations shall be paid into the subvention fund set apart for primary instruction in the budget of public instruction.

SECTION X.

Special provisions.

ART. 30. Articles 2, 3, 4, and 5 of the present law are applicable in the case of children placed in apprenticeship and employed in industrial work.

The provisions of the above articles, Nos. 18 and 25, shall be applicable to the said cases in so far as they modify the jurisdiction and the totals of the penalties indicated in the first paragraph of article 20 of the law of February 22, 1851.

The said law shall continue in force in all its other clauses.

ART. 31. As a transitory measure the provisions decreed in the present law shall only come into force one year after the date of its promulgation.

Provided that at the said period children already legally admitted to work in factories shall continue to be so employed under the conditions laid down in article 3.

ART. 32. At the expiration of the above-mentioned interval all provisions contrary to the present law are and shall be revoked.¹

Signed by the President,

L. BUFFET.

The secretaries: FÉLIX VOISIN, FRANCISQUE RIVE, LOUIS DE SÈGUR, E. DE CAZENOVE DE PRADINE.

The President of the Republic promulgates this present law.

Signed,

MA^L DE MACMAHON, DUC DE MAGENTA.

The Minister of Agriculture and Commerce.

Signed,

L. GRIVART.

¹ By the projet de loi on labor in factories, passed by the Chamber of Deputies on the 29th March, 1881, and read a first time in the Senate, it is proposed to reduce the hours of labor of minors under 18 years of age, and of women, to 11 hours per day and to six days in each week.

N. B.—The hours of labor have already been reduced in some trades to 11½ hours, and in some even to 10 hours of effective work for all the hands, by agreement between the masters and the workpeople.

APPENDIX No. VII.

REPORT OF A COMMISSION APPOINTED TO DRAW UP A PROGRAMME
FOR HANDICRAFT APPRENTICESHIP SCHOOLS.

TO THE MINISTER OF PUBLIC INSTRUCTION AND FINE ARTS.

PARIS, August 11, 1881.

SIR: In concert with the minister of agriculture and commerce, you appointed a ministerial commission, under date of May 31, 1881, charged with the preparation of a scheme for a national graded school of higher primary and professional instruction, to be established conformably with the provisions of the law of the 11th December, 1880.¹

This commission has to-day the honor of submitting to you the result of its deliberations.

The following is the tenor of the first article of the law of the 11th December, 1880, relating to handicraft apprenticeship schools:

"Apprenticeship schools, founded by communes or departments in order to develop the necessary dexterity and technical knowledge in young persons destined for manual occupations, are hereby placed in the category of establishments for primary instruction.

"Public schools for complementary primary instruction the programmes of which include classes for professional instruction are hereby assimilated to handicraft apprenticeship schools."

The law of the 11th December, 1880, was prompted by the very just observation of its authors that the professional value of nearly all classes of workmen has appeared to be on the decrease in France for some time past. This deplorable state of things, which might be fraught with the gravest consequences for the future of our national industries, is in a great measure due to the various causes pointed out and discussed by MM. Nadaud and Tolain in their reports to the Chamber of Deputies and to the Senate, viz, that apprenticeship has, so to speak, ceased to exist in this country.

There is no means of remedying this defect other than by stimulating the creation of special professional schools in our various industrial centres for each chief branch of trade, which schools should be capable of replacing, and replacing even with advantage, that which apprenticeship was formerly for young people. The utility of founding similar establishments no longer requires proof; a considerable number of manufacturing towns have recognized this, and have taken what must be regarded as a praiseworthy initiative in this respect. It is for this purpose that the municipal school of the Boulevard de la Villette and the clock-making school have been founded in Paris; that Rheims has founded the municipal professional school in which dyeing, spinning, and weaving occupy an important place in the programme; that Nismes has established the school workshop for the various textile fabrics which have made the fortune of the town; that Limoges has the

¹ The following are the members of this commission: MM. Tolain (senator), member of the superior council of technical instruction, president; Girard, director of home commerce at the ministry of agriculture and commerce, vice president; De Bagnaux, director of the secretarial department of the accounts, in the same ministry; F. Buisson, inspector general for primary instruction, under the ministry of education; Jacquemart, inspector general for the "Arts et Métiers" schools, and also for technical instruction, reporter; Marguerin, formerly an administrator of the Paris superior primary schools; De Montmahou, inspector general for public instruction; Salicis, tutor at the polytechnic school; Worms, doctor of medicine, on the staff of the prefect of the Seine; and Debras, an assistant secretary in the department for primary instruction, secretary.

school for ceramic decoration; and that Douai and Havre have been provided with apprenticeship schools. Such being the position of affairs, the law of the 11th December, 1880, has the twofold aim, first, of forming in special apprenticeship schools and distributing among the various trades thoroughly trained workmen, well versed in their occupations; and, second, of giving the requisite dexterity of hand and sufficient technical knowledge to young persons proposing to enter the special apprenticeship schools of the second class (*degré secondaire*).

It is with this latter object in view, sir, that you have decided upon the "foundation of a national school of superior primary instruction and of professional training, preparatory to apprenticeship, which should serve as a model for the establishments of a similar kind, which will be created under the operation of the above law."¹ The commission named in the decree of the 31st May, 1881, was charged with the preparation of a programme for this school.

The commission was of opinion that an establishment of this kind should comprise an infant school, a primary school, and a superior primary and professional school; that in addition to these, with a view of preparing a staff capable of superintending the practical instruction conveyed in the schools, it would be advisable that the state should send a certain number of masters in training from the normal schools to spend a sufficient time in this school to acquire the knowledge in which they are at present deficient.

It was also considered by the commission that, owing to the special nature of the proposed group of schools, any attempt to make the handicraft teaching bear upon particular trades should be avoided.

The projected school would thus comprise, first, the infant school, receiving children from 3 to 6 years of age; second, the primary school, for children between 7 and 12 years of age; third, the superior primary school, into which the children might be admitted from 12 to 14 years of age; fourth, the section of masters-in-training.

It became necessary to determine what would be the uninterrupted series of manual exercises which would be best calculated, if taught to the child throughout this period, to give to him (when the time came to leave the superior primary school) the requisite amount of dexterity of hand, combined with a sufficiency of technical knowledge.

The commission believes that the programme appended to this report will answer this purpose.

As respects the infant school (from 3 to 6 years old) the introduction of the system of Fröbel, suitably extended and developed, will satisfy all the requirements of the general scheme of instruction.

At the age of 7 the child enters the primary school, and stays there until the completion of its twelfth year, that is to say, for a period averaging 6 years.

In order to apprehend more fully the nature of the manual exercises upon which children should be engaged in the primary school, it may be convenient to consider here the degree of knowledge which it is desirable they should possess on leaving the higher school.

The amount of theoretical knowledge which would be indispensable seems to us to be accurately laid down in the programme for superior primary schools, having a three years' course, which was fixed by the ministerial decree of the 15th of January, 1881. As concerns the practical knowledge which would be necessary, the commission is of opinion that this might be acquired, under the conditions most favorable for children in the superior primary school, by means of a progressive course of handicraft teaching, which, while limited to two hours each day in the first year, should occupy almost the entire day in the third.

It results from this observation that it would not be absolutely necessary to put into the hands of children under 12 years of age the tools employed for working in wood and iron.

¹ Decree of the 9th July, 1881.

Nevertheless there is reason to believe that, beginning from 10 years of age, the work in the shops would not be injurious if the instruction is suitably directed, and if care is taken to intrust to weak and inexperienced hands only such tools as are proportioned to the muscular powers of the pupil, and so selected as to have no prejudicial effect on the development of the bodily frame of the growing lad.

Children of 11 or 12 may therefore already be, to a certain extent, familiar with the majority of tools used in working wood, be able to work at the lathe, and know how to hold a file, while skill and delicacy of hand will simultaneously be kept up by the practice of modelling in clay.

In the interval between 7 and 10 years of age all that must be attempted in the way of developing the manual dexterity of the child must be light tasks requiring little or no exercise of physical force. Drawing, cutting out patterns, joining together pieces of cardboard, in order to produce objects of various forms and colors, will at the same time fix his attention and evoke his intelligence and ingenuity.

To these works may be added the making of small objects in basket work and trellis work in wire, which will already need the employment of a light tool. It is essential at this age to employ the children in the genuine production of things which they may take home and show as their own handiwork. Certain of these objects, bearing the name of the pupil who made them, will remain at the school and constitute the basis of the school museum.

Between the ages of 7 and 10 modelling should already have taken its place among the school studies.

The child at length quits the primary school and enters the higher school. The most suitable age for this, if the future workman is considered, would seem to be that of 12. The lad, leaving this latter school three years later, at the age of 15 or 16, would find himself in the most favorable position either to enter a special professional school of the second degree or to complete his training as rapidly as possible as a workman in the outside workshop.

The handicraft instruction of the superior primary school should, the commission is of opinion, be based upon working in wood and iron. In fact, the work in these two materials offers an almost illimitable field for that general preparation, without any tendency toward specialization, which the pupils ought to obtain.

Working in wood and iron should be alternated in such a manner that at the end of the year the pupil should have been engaged in practical work in each of these two materials for two periods of 60 days each in each of the two shops. These two kinds of work thus connected together would mutually supplement one another. In this way, having acquired a practical knowledge of wood turning, the students could pass with increased advantage to metal turning, and after having completed the construction of any kind of wooden framework he could far more easily understand the difficulties of joining two pieces of metal work.

In the superior primary school the course of drawing should consist during the first year in tracing in outline and flat-washing, the special aim of which should be to give precision and neatness of execution.

In the second year architectural drawing and ornament should be combined with the modelling. Sketching in freehand should occupy a place of the utmost importance in this branch of teaching.

In the third year the teaching in drawing would consist mainly in sketching and making finished drawings, with sections and dimensions, of the different tools and apparatus used in the workshops, the students' works being exclusively executed after drawings they themselves have made from such objects.

Such, sir, are, as briefly as possible, the general ideas which have guided the commission in the preparation of the programme which they have the honor of submitting for your examination.

As concerns the assistant masters of the normal schools, it has been considered advisable for the time being to defer this part of the question.

The president of the commission, H. TOLAIN (Senator).

The reporter,

P. JACQUEMART.

PROGRAMME.

INFANT SCHOOL.

(Application and extension of the Fröbel system. Education of the senses.)

PRIMARY SCHOOL.

(Manual exercises intended to develop the children's skill of hand.)

Elementary class (7 and 8 years old). 1 hour per day.

Elementary exercises in freehand drawing, symmetrical arrangement of forms, cutting out pieces of colored paper and applying them upon geometrical forms, exercises in coloring, cutting out geometrical forms in cardboard. Representations of geometrical solids. All these exercises to be done first on squared and subsequently on plain paper.

Small basket work.—Arrangement of strips of colored paper: First, in interwoven forms; second, in plaited patterns.

Modelling. Reproductions of geometric solids and simple objects.

Intermediate class (9 and 10 years old). 1 hour per day.

Cutting out cardboard patterns; construction of regular geometric solids; construction by the pupils of cardboard models, covered with colored drawings or colored paper.

Small basket work; combinations of plaits; basket making.

Objects made of wire; trellis or netting; wire chain making.

Combination of wire and wood. Cages.

Modelling simple architectural ornaments.

Object lessons. Principal characteristics of wood and the common metals.

Upper class (11 and 12 years old). 2 hours per day.

Drawing and modelling. Continuation of the exercises in the preceding class. Repetition of the ornaments, previously executed, in the form of sketches with dimensions attached to them. Drawing the requisite sections for this purpose. Reproducing the sections as measured sketches. Study of the various tools used in working wood. Hammer, mallet, chisel, gimlet, centre bit, brace, screwdriver, compasses, square, marking gauge, saws of different kinds, jack plane, trying plane, smoothing plane, files and rasps, level.

Theoretical and practical lessons on the above.

Planing and sawing wood. Construction of simple joints.

Boxes nailed together or jointed without tacks.

Wood lathe. Tools used in turning. Turning simple geometrical forms.

Study of the tools used in working iron. Hammer, chisel, cutting tool, cold chisel, squares, compass, files, &c. Theoretical and practical lessons concerning them.

Exercises in filing, smoothing, and finishing rough forgings or castings (cubes, polygonal nuts).

The practical work in the shops in primary schools is to be followed by gymnastic exercises, in accordance with a special programme.¹

¹The programme includes manual work for girls. This is also arranged in three courses and comprises knitting, plain sewing, and embroidery, to which are added in the elementary course manual exercises designed to develop dexterity, such as cutting out and fitting pieces of colored paper; first attempts at modelling. In the superior course instruction is given in the elements of domestic economy with practical applications to the kitchen, laundry, the house generally, the garden and yard; practical instruction is given in the school and at home.

TECHNICAL INSTRUCTION IN FRANCE.

The superior primary school system of France owes its origin to M. Guizot, who effected its organization by the law of 1833. The various changes in the law from time to time to the present have been made to meet the complex and changing needs of classes for whose benefit this grade of education was inaugurated. These successive changes in the law have led to corresponding alterations in the programmes promulgated from time to time; and it is proper to regard the accompanying programme as a tentative rather than a final and permanent expression of the character of the education it tended to give in this class of schools.

SUPERIOR PRIMARY SCHOOL.

The superior primary instruction given in the school will comprise the subjects specified in the following programme, as fixed by the ministerial decree of January 15, 1882, for schools having a course extending over three years and more.

Morals.—The principles of morals. Duties and rights of the citizen. Elementary principles of political economy.

French language.—Methodical study of grammar and orthography. Etymological derivation of words. Reading with proper emphasis and explanation of the metres. Exercises in style and composition. Elements of the history of literature.

Writing.—Principles and practice of running hand, round hand, and commercial writing.

History.—Principal characters of antiquity. History of France up to the present. Development of national institutions. Chief epochs of general history (ancient history, middle ages, and modern history).

Geography.—Physical and political geography of the five quarters of the world. Special study of the geography of France, comprising the divisions for administrative purposes. Economic geography. Map drawing.

Modern languages.—One modern language at least.

Mathematics.—First year: Theoretical and practical arithmetic; first elements of elementary geometry. Second year: Advanced arithmetic; elements of algebra; plane geometry and its applications. Third and fourth years: principles of algebra as applied to the solution of simple equations; the elementary principles of rectilinear trigonometry as applied to the estimation of triangles; elementary principles of solid geometry and their applications; the common curves.

Accounts.—First principles of commerce and account-keeping; book-keeping; current accounts bearing interest.

Physics.—The most important phenomena and the chief theories of physics. Modern discoveries and the applications of science to daily life.

Chemistry.—Exercises involving the observation and examination of some of the most important facts introductory to the study of chemistry. The metalloids and the most important metals. The laws of chemistry. The elements of organic chemistry.

Natural history.—Organs and functions of men and animals. Practical study of the principal groups of animals and vegetables. Application of hygiene to the localities. Principal facts of geology and examination of the best known minerals.

Drawing.—Geometrical drawing. Lines, plane surfaces, elements of tinting. Obtaining the points of intersection in penetrations of solids and projections. Principles of perspective. Figured sketches. Essential parts of machinery and plans of buildings. Drawing from relief models and from the cast.

Singing.—Choirs with three parts.

Gymnastics.—Exercises in which all do alike. Exercises with apparatus. Military exercises.

NOTE.—The subjects in this programme are to be apportioned over the three-year course so as to apply in the best way to the requirements of the professional instruction.

PROFESSIONAL INSTRUCTION.

First year (2 hours per day). Supplement to the superior primary classes.

Drawing and modelling. Execution of the regular geometric solids of given dimensions from figured sketches.

Workshop teaching :

First period.—Working in wood. A box. A drawing board. A mortise and tenon joint. An oblique joint. A slit and tongue joint. A joint halved together obliquely. A St. Andrew's cross. Various kinds of scarfed joints.

Second period.—Working in iron. Exercises with the file on an uneven piece of iron. Make rectangular parallelepiped with a square base of given dimensions. This to be converted into an octagonal prism; then into one with sixteen sides. This to be filed round. Then, in the lathe, to turn this into a cylinder of specified diameter, and finally to convert it into a hexagonal prism.

Third period. Working in wood. Various kinds of dovetail joints. Splices. Skew splices, halved together (two kinds). Scarfs halved with dovetail pieces.

Fourth period.—Working in iron. Tool making. Two rules in iron of given dimensions. Two plain squares. A pair of callipers. Exercises with the lathe and the cutting chisel.

Second year. Supplement to the superior primary classes.

Drawing and modelling. Execution of a graduated series of ornamental casts composed of elements of solid geometry, arranged systematically; rosettes, &c.

Work in the shops (3 hours per day):

First period.—Working in wood. Mortise and tenon to moulded work. Tenon for mitre joint. Mortise and tenon with chamfered dovetail. Tongued joint with cross ties. Mortise and tenon for quoins.

Second period.—Working in iron. An angle out of square. A pair of pointed compasses. A hand vise.

Third period.—Working in wood. Angle open mortise joint. Slit and tongue joint in two thicknesses of stuff. Stepped mortise and tenon. Square joint of two cylinders. Oblique joint of two cylinders. A pair of screw clamps.

Fourth period.—Working in iron. Bit pinchers. Screw wrench. Exercise with the lathe. Exercise with the cold chisel.

Third year. Supplement to the superior primary classes.

Drawing and modelling. Elements of architecture. Orders and styles.

Ornaments of the different orders and styles.

Industrial drawing. Theoretical principles of composition and of the arrangement of colors.

General principles of the application of drawing to pottery, to fret cutting in wood and metal, to artistic locksmiths' work, and to the ornamental stamping of paper and fabrics.

Chemistry.—Experiments in the laboratory. Manipulation. Analyses. Mode of fixing colors (applied to pottery, stuffs, &c.).

Accounts.—Industrial account keeping. Fixing of a scale of profits. Applying the same to the work of tools and simple machines.

Work in the shops (5 hours per day during the first six months, and 7 hours daily during the last six months):

First period.—Working in wood. The making of tools. Moulding block. Mitre block. Wood bench clamp. Tenon saw. Small hand saw. Inlaying saw. A plane. Use of the wood lathe.

Second period.—Working in iron. The making of tools. A pair of steel squares, one of them to be a rim square. A tap wrench. Working with the cutting chisel.

Third period.—Working in wood. The making of tools. A plane, jack plane, square, marking gauge, grooving plane. Work with the lathe. Model making.

Fourth period.—Working in iron. Making a shifting gauge. Working at the forge. Elementary work. Making of tools, chisels, cross cut chisels, boring bits, &c. Working at the lathe and with the cutting chisel.

Supplementary work in the shops:

After the end of the third year's course the pupils may, if they request it, be maintained at the establishment to work all day long in the shops throughout the holidays.

They will be paid wages for this work.

APPENDIX No. VIII.

LETTERS RESPECTING THE TRAINING OF APPRENTICES AT THE
SCHOOL OF THE BOULEVARD DE LA VILLETTE.

PARIS, 21st January, 1882.

SIR: We are in receipt of your favor of the 2d instant, which refers to the École d'Apprentis in the Boulevard de la Villette.

The Royal Commission on Technical Education do an honor to this firm in asking them the opinion which they may have formed generally of the instruction given in that school, and also if they have found the boys trained there to be good and efficient workmen at the time of leaving the École d'Apprentis.

In reply, we beg to say that we find the boys trained at the École de la Villette to have a good idea of drawing, which enables them to understand the working drawings used in the works, but they are by no means efficient workmen; we find that the apprentices which are brought up to the trade in our own works or others are, age for age, far superior workmen to the boys trained at la Villette.

You are, no doubt, aware that there are in Paris evening classes of drawing at the Conservatoire des Arts et Métiers and at various establishments patronized by the municipal council and most of the mairies.

In our opinion, the workmen can obtain and we know that some of our industrious young men have acquired at these classes a sufficient knowledge of drawing, and we think that the practical part of the instruction which has to be taught to the apprentice is far better acquired inside the works, where machinery is daily produced.

We are at your disposal for any information we may know respecting these questions, and we beg you will excuse our delay in writing, which has been caused by an illness of the writer.

We remain, sir, your obedient servants,

VARRALL, ELWELL & MIDDLETON.

G. REDGRAVE, Esq.,

Secretary Royal Commission on Technical Education, London.

[From the chief engineer of the locomotive and carriage department of the Chemin de Fer de l'Est.]

PARIS, 21st January, 1882.

SIR: By your letter of the 2d January, you ask me for my general opinion of the municipal apprenticeship school of the Boulevard de la Villette and of the workmen which it has formed.

I have the honor to inform you that in my opinion this institution is capable of supplying to industrial establishments persons suitably prepared and possessing the practical and theoretical knowledge necessary for becoming in time good workmen, provided they are placed in a suitable medium, under an active direction and under sufficient surveillance of their conduct; for it must be admitted that, taking the lower limit of the age of entrance, 13 years, the three years which they pass in school are insufficient, and cast on the life of the workshop young people who are still children and are not sufficiently formed, as regards either character or trade knowledge, to be left entirely free; an addi-

tional year would appear to me to be indispensable in order to obtain workmen quite sure of themselves as regards their trade capacity, and able to resist bad advice.

As to the young people who, on leaving the school, have been admitted on our staff we believe that by continuing to improve themselves in our works they will in time take rank amongst the élite of our workmen.

Accept my compliments.

J. REGRAY.

GILBERT REDGRAVE, Esq.

11-11-11

CIRCULARS OF INFORMATION

OF THE

BUREAU OF EDUCATION.

No. 1-1883.

**LEGAL PROVISIONS RESPECTING THE EXAMINATION
AND LICENSING OF TEACHERS.**

**WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1883.**

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1. The first part of the document is a list of names and addresses of the members of the committee.

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LETTER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., April 13, 1883.

SIR: The many demands upon this Office for information in regard to the methods of examining teachers have compelled the frequent gathering of data on the subject. The facts are primarily of local interest and limited application, but many of them are also of public importance, and are demanded by educators. The conviction is common that a wise system of examination tends to protect schools against unqualified instructors and to stimulate those employed to higher attainments. The systems adopted in the several States differ greatly, and it is to be presumed that each contains points of excellence which may be suggestive to those conducting examinations. An account of them shows how it has seemed best to determine whether a teacher has sufficient literary qualifications, mental capacity, professional ability, and that comprehension of principles which cannot be obtained by any forced preparation.

I have caused the most pertinent facts with regard to the conduct of examinations to be collated and prepared for general use, and hereby recommend their publication. I do so with no desire to call undue attention to examinations. The danger of making them an end in education and an inducement to cramming is realized in our own and foreign countries. 'This error should be zealously avoided, lest it should become true of the schools of our country as it has been asserted recently by an eminent English authority to be of the schools of England. that "over-examination and its natural consequence, over-pressure of pupils, are two terrible evils in the existing system that cry out for resistance and remedy."

It is believed that this résumé will be useful to school officials (especially superintendents and examiners), to legislators occupied with school law, and to many miscellaneous inquirers.

Very respectfully, your obedient servant,

JOHN EATON,
Commissioner.

The Hon. SECRETARY OF THE INTERIOR.

Publication approved.

H. M. TELLER,
Secretary.

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THE EXAMINATION AND LICENSING OF TEACHERS.

ALABAMA.

In Alabama teachers are licensed by a county board of examiners, which is composed of the county superintendent of education and two teachers of the county appointed by him. The board meets monthly, or oftener, at such times and places as it may designate, and makes its own rules for the examinations. No one is entitled to a license without examination except those who hold the diploma of a regularly chartered institution of learning.—(School law, 1878.)

In a recent report the State superintendent of education says:

Another fruitful cause of improvement which should not be overlooked is the fidelity and zeal with which the county educational boards have discharged their duty in the examination of teachers.

He also calls attention to the fact that applicants are rejected for want of good moral character.

ARKANSAS.

A county examiner is appointed by the county court. He holds quarterly examinations at the county seat, giving twenty days' notice to the directors of each school district. The subjects on which candidates are examined are orthography, reading, penmanship, mental and written arithmetic, English grammar, modern geography, and history of the United States. Both oral and written questions are used, lists being furnished by the State superintendent of public instruction. Three grades of certificates are issued, which are valid two years, one year, and six months, respectively, throughout the county. The examiner is forbidden to "license any person who is given to profanity, drunkenness, gambling, licentiousness, or other demoralizing vices, or who does not believe in the existence of a Supreme Being."

The State superintendent may grant State life certificates to persons passing a thorough examination in the branches required for county certificates, as enumerated above, and in algebra, geometry, physics, rhetoric, mental philosophy, history, Latin, State and national Constitutions, natural history, and theory and art of teaching.—(School law.)

CALIFORNIA.

In California, county, county and city, and city boards of education grant certificates, and the State board of education grants State educational and life diplomas. The county certificates are of two grades, one

authorizing the holder to teach a grammar school four years; the other, to teach a primary school two years. They are granted either upon examination before the board or upon presentation of a life, State educational, normal school, or State university diploma. The examinations are held semiannually and are conducted according to rules prescribed and enforced by the county board, and the standard of proficiency which entitles the applicant to a certificate is also determined by that body. The State superintendent says that "the rules and methods adopted by some of the boards are excellent, and in all satisfactory." The examination must cover all the studies prescribed by the county board of education; but applicants for second grade certificates are required to pass only in arithmetic, grammar, geography, composition, history of the United States, orthography, defining, penmanship, reading, and method of teaching. The questions must be partly oral and partly written.

A city board of examination may exist in every city or city and county having a board of education. It consists of the city superintendent of public schools and four other members, two of whom are experienced teachers. Examinations are held semiannually. The board has power (1) to adopt rules for its own government and the examination of teachers; (2) to examine applicants and grant certificates of three grades: (a) high school certificates, valid six years and authorizing the holder to teach any primary, grammar, or high school in the city; (b) city certificates, first grade, valid for four years and authorizing the holder to teach a primary or grammar school; (c) city certificates, second grade, valid two years and authorizing the holder to teach a primary school. It may also grant special certificates on special studies; these are valid four years. Certificates may be given, without examination, to holders of State diplomas.

The examination in San Francisco City and County, as it was conducted in 1880, may be described in illustration of the method of city examinations in California. It was held before the board of examiners under the direction of the board of education. The rules governing the examination were as follows:

- (1) All questions shall be practical in their character.
- (2) Every examiner must furnish sets of answers to his questions for the use of the board.
- (3) Cards having candidate's number in examination, age in years and months, and a certificate to be signed by the candidate, stating that he or she intends, if successful, to follow teaching as a profession, and considers it immoral and unprofessional to improperly obtain or use the questions or answers for this or any other teachers' examination, shall be furnished by the secretary to persons intending to enter the examination. The truth of these statements shall afterwards be sworn to by the successful candidates.
- (4) Examiners, during the progress of the examination, are to give their undivided attention to candidates, and are not to hold conversation with other persons or to permit conversation in the rooms.
- (5) No papers of candidates for certificates shall be examined or credited by any

other person or persons than the members of the city board of examiners and the deputy superintendent of schools.

(6) All questions for the examination are to be prepared by the city board of examiners and submitted to the board [of education] previous to the examination; and said board reserves the right to strike out such questions as they may deem objectionable.

(7) In case of a dispute as to the correctness of the marking of any papers, such papers shall be reexamined by the board of examiners and the committee on credentials and qualifications of teachers jointly.

(8) The superintendent shall not allow applicants to examine their credited papers, except by a vote of the board of examiners.

The following table shows the subjects of examination, the possible number of credits to be obtained under each study, and the number of questions asked in each. Eighty per cent. of the possible number of credits is required for a second grade certificate, and 85 per cent. for a first grade:

Subjects of examination.	Possible credits.		Number of questions.
	1st grade.	2d grade.	
Arithmetic, written	100	100	10
Arithmetic, mental	50	50	20
Grammar	100	100	10
Geography	100	50	10
History of the United States		50	20
United States and contemporary history	80		16
Theory and practice of teaching	100	100	5
Algebra	50		5
Physics	80		10
Penmanship	30	50	6
Book-keeping	20		1
Physiology and hygiene	50		9
Composition	50	50	3
Reading	50	50	
Orthography and word analysis	80	100	
Vocal music	20		4
Industrial drawing	40		6
Total	1,000	700	135

Whenever an additional teacher is required or a vacancy is to be filled, each director may nominate one of those who have passed examination; the committee on teachers report on the same, and the board elects for six months at first; afterwards permanently, if the teacher prove successful. Thus it is evident that the examination of teachers in San Francisco, though it has been called competitive, is not so.

The State board of education has the power to grant educational diplomas, valid for six years, and life diplomas, under the following conditions:

State educational diplomas must be issued to such persons only as have held a first grade State, city, county, or city and county certificate for at least one year and shall furnish satisfactory evidence of having been successfully engaged in teaching for at least five years. Every application for an educational diploma must be accompanied by a certified copy of a resolution adopted by a local or county board of education, recommending that the same be granted.

Life diplomas must be issued upon all and the same conditions as educational diplomas, except that the applicant must furnish satisfactory evidence of having successfully engaged in teaching for at least ten years.

These State diplomas have no binding legal force, but are a common basis on which to issue local certificates.—(School law, 1881; report of State superintendent, 1880; and San Francisco city report, 1880.)

COLORADO.

Teachers of not less than two years' successful experience in the public schools of the State may be granted by the board of education State diplomas, good until revoked, on condition of successfully passing a public examination of such a character and before such examiners as the superintendent of public instruction and the presidents of the State Agricultural College, the State University, and the State School of Mines may prescribe. But one applicant had undertaken the State examination up to the middle of 1880, and that one failed. A few diplomas have been granted by courtesy to persons who held State certificates from other States.

Teachers not holding State diplomas must be licensed by the county superintendent. For this purpose he holds quarterly examinations. Between these he may grant temporary certificates. Three grades of certificates are given, which are valid for two years, one year, and six months, respectively. It has been the settled policy in the State to use in the county examinations lists of questions prepared by the State superintendent. The subjects embraced in the questions sent out in 1880 were arithmetic, history and Constitution of the United States, reading, writing, and orthography, physiology, school law, botany, grammar, geography, pedagogics, and the elements of the natural sciences. A circular was sent with the questions, which made the following recommendations, namely: That two days be taken for the examinations; that applicants be required to do the whole work as planned; that a first grade certificate be given to experienced and successful teachers who have a standing of 90 per cent. or more in the common branches and 75 or more in the higher branches, i. e., school law, physiology, botany, and other sciences; that a second grade certificate be given to those obtaining at least 75 per cent. in the former branches and 50 per cent. in the latter; and a third grade certificate to those obtaining 60 per cent. in the former and 50 per cent. in the latter class of studies;

that the answers should be marked by the examiner or disinterested outsiders, only the number of the person examined being known; and that success in teaching, good moral character, and an acquaintance with educational literature be given weight in the examination.—(School law, 1881, and report of State superintendent, 1880.)

CONNECTICUT.

Teachers are licensed upon examination by a township board of school visitors for a specified or an indefinite period¹ and either for one or for all of the districts of the town. They are required to be qualified to teach reading, writing, arithmetic, and grammar thoroughly, the rudiments of geography and history, and drawing, if it is required. If any teacher is found qualified to teach other branches, they are named in his certificate.—(School law, 1879.)

Hon. B. G. Northrop, formerly secretary of the State board of education, severely criticises the law regarding the examination of teachers. In his fifteenth annual report he said :

The present method of examination is the weakest point in our school system. Teachers are approbated only by the school officers of the townships in which they teach. Candidates rejected in one township may be certificated in the next. Hence many of our schools suffer greatly from the incompetency of teachers. This evil arises not so much from the scarcity of good teachers as from a vicious method of selection.

DELAWARE.

It is the duty of the State superintendent of free schools to hold public examinations. They may be oral or written, or both. Their character is thus described by Hon. H. C. Carpenter, assistant State superintendent :

The first condition is a satisfactory testimonial of good moral character. The candidate is required to be examined in the following branches, viz : orthography, reading, writing, mental and written arithmetic, grammar, geography, United States history, and theory and art of teaching.

If he furnishes work in all the branches and makes an average of 60 per cent., he is entitled to a third grade certificate, good for one year. If he makes 90 per cent., he is entitled to a second grade certificate, good for two years. If the candidate desires a first grade certificate, in addition to the above named branches, he must be examined in algebra, geometry, natural philosophy, and rhetoric, and must make an average of 75 per cent. The first grade certificate is good for three years. The greater part of the examination is written. Reading, mental arithmetic, and theory and art of teaching are usually taken for the oral examination.

The annual examinations take place in June, and they are held generally in from three to five points in each county, so that the teachers shall be put to little expense in attending them.

DISTRICT OF COLUMBIA.

All matters pertaining to the qualifications and salaries of teachers are intrusted to the committee on teachers, which is composed of seven

¹ A general certificate, without limitation of time, given to a teacher qualifies him to teach in any district of the town until it is annulled or a reëxamination ordered. 36 Conn., 282.

members of the board of trustees of the public schools. The two school superintendents and other persons appointed by the committee on teachers constitute the examining board. They hold examinations to determine the qualifications of applicants for original certificates and for promotion, on the second Saturday before Christmas and the third Saturday in May of each year. The examinations are both oral and written, the written preceding the oral. The rank of the candidates is marked on a scale extending from one to one hundred. Of the possible one hundred credits eighty may be awarded on the written and twenty on the oral examination.

The examining board is divided into two sections. The first section has charge of preparing questions and supervising the written examination. It also conducts the oral examination. The second section of the examiners has charge of the inspection and marking of the written answers. At a meeting soon after the oral examination the committee on teachers open the returns of the examining board, and, on consideration thereof, select such candidates as in their judgment have given evidence of scholarship, aptness to teach, and health sufficient to justify their employment. The subjects of examination are the studies of the public schools, the science and art of teaching, and the care of the school room—its heating, ventilation, cleanliness, preservation of furniture, &c.

The certificates given on the results of these examinations are of three grades, determined by the candidates' standing. The first class entitles the holder to teach in any grade of the public schools up to the third; the second class certificate, in any grade up to the fifth; the third class certificate, in any grade up to the seventh. A fourth class of certificates, good up to eighth grade schools, and special certificates are obtained at separate examinations.

Another method of securing the right to teach in the public schools of the District is by attendance upon the normal school. Each year a number of applicants, not to exceed twenty, are put in training for the public schools. They are selected, by competitive examination, from among the graduates of the high school. After a year of training the normal pupils receive a certificate equivalent to one of the second class. At the expiration of a year of successful teaching a diploma of equal value with a third grade certificate is given.—(Report of superintendent, 1879-'80.)

FLORIDA.

In Florida certificates are granted by the county board of public instruction and by the State superintendent of instruction. The county board, which consists of not more than five members, recommended by the representatives from the county, nominated by the State superintendent, and appointed by the State board of education, grants third class and second class certificates, valid in the county one year. It may

examine teachers at any time after giving ample notice. The State superintendent of public instruction determines the standard of qualifications to be attained by candidates for each grade of certificates, and grants first class certificates to successful teachers and to graduates of the department of teaching.

The regulations issued in 1877 prescribe that a candidate, to be eligible to examination, must produce satisfactory evidence of strictly temperate habits and good moral character; that, to be entitled to a third class certificate, a candidate must answer at least 75 per cent. of the questions submitted in the elementary branches, including history and school administration; that the candidate for a second class certificate must obtain 80 per cent. in an examination covering the ground already mentioned, and also including book-keeping and the underlying principles of the branches taught; and that first class certificates be given to graduates of normal schools and to eminently successful teachers of the second class who, on examination, answer 85 per cent. of the questions submitted in the branches usually taught in high schools.—(School law.)

The number of persons in the year ending September 30, 1880, obtaining first class certificates was 13; second class, 394; third class, 679.

In some parts of the State the examinations are reported to be thorough and effective. A county superintendent residing at Jacksonville, in reporting to the State superintendent, says :

No applicant for work as a teacher is employed except he or she is first submitted to a full examination upon such branches as are prescribed in the school laws, both written and oral, with such variations in advance of those as the board in its discretion may think the circumstances may warrant. As a result of this, many inefficient teachers, whom the present board found in charge of the schools, have been dismissed, and there is now as fine a corps of teachers (both white and colored) employed as can be found anywhere.

GEORGIA.

Teachers are examined by the county school commissioner and recommended by him to the county school board for a license of the first, second, or third degree, according to qualifications exhibited. These licenses are good for three years, two years, and one year, respectively, in the county where given, and, by indorsement, in other counties. Applicants are ordinarily examined in orthography, reading, writing, English grammar, geography, and arithmetic, and in higher studies if they are to be taught; but those proposing to teach in the primary schools may be examined upon a portion only of these studies, and receive a license to teach that portion in a particular subdistrict. Evidence of moral character is a prerequisite to examination.—(School law, 1877.)

ILLINOIS.

In Illinois licenses of limited duration are granted by county superintendents and of perpetual validity by the State superintendent. The certificates given by the county superintendents are of two grades. Those of the first grade are good for two years, and certify that the holder is qualified to teach orthography, reading, penmanship, arithmetic, English grammar, modern geography, the elements of the natural sciences, United States history, physiology, and the laws of health. Certificates of the second grade are valid one year, and certify that the holder is qualified to teach the studies mentioned above, excepting natural science, physiology, and the laws of health. The examinations are differently conducted in the several counties. Certificates may be renewed by indorsement at the option of the superintendent. Diplomas of normal schools established by a county are "evidence of qualifications" in the county. State certificates are given to those passing an examination under the direction of the State superintendent and the principals of the normal universities. In order to be admitted to this examination, the candidate must have furnished the State superintendent satisfactory evidence of good moral character and of having taught with decided success not less than three years, one of which shall have been in the State and within five years previous to the examination. The evidence of success "is vital and must be clear and explicit." The time the applicant has taught and the place and kind of school are sufficiently proven by his own declaration. In order to receive a certificate, he must write a brief essay on some familiar topic and pass a thorough examination in the common branches, and in algebra, the elements of plane and solid geometry, and the theory and art of education, and a satisfactory examination in natural philosophy, physical geography, anatomy and physiology, botany, zoölogy, astronomy, chemistry, and school law. The examinations usually continue three or four days and are held in several places (seven in 1879 and ten in 1880) on the same days, under charge of practical teachers of high character and distinguished ability. The examination is partly oral and partly written, the latter having double the weight of the former in determining standing. The answers of the candidates are sent by those conducting the examinations to a central committee, who mark them and report the results to the State superintendent. For questions used in the examinations held in 1880, see appendix, page 35 et seq.—(School law, 1879, and report, 1880.)

INDIANA.

In Indiana the State board of education and the several county superintendents are empowered to grant licenses to teach. Each county superintendent is required to hold a public examination at some place in the county at least once a month, and may hold extra examinations in case of emergency. Printed lists of questions are furnished by the

State board. The licenses are valid for six, twelve, eighteen, or twenty-four months, according to the ratio of correct answers and other evidences of qualification.

The State board of education conducts examinations annually at various points in the State, and certificates of two grades, valid for life throughout the State, are given to successful candidates. The scheme adopted by the board for the examination of applicants in 1881 was as follows :

The applicant shall present to the examiner at the time of the examination a full statement setting forth the name of the institution or institutions at which he has been educated and the courses of study he has pursued and completed. He shall also furnish satisfactory evidence, by reference, certificate, or otherwise, that he has taught or supervised school work for at least seven years (of eight months each), of which two years shall have been in Indiana; that, during this period, he has maintained, and does still maintain, a good character; that he has attained high distinction as a successful educator, showing superior ability to instruct and marked tact as a disciplinarian. Applicants will be examined in the following branches: For certificate of second grade: reading, writing, orthography, arithmetic, grammar, geography (including physical geography), United States history, physiology, elements of algebra, plane geometry, elements of physics, elements of zoölogy, elements of botany, Constitution of the United States, moral science, and the science of teaching.

For certificate of first grade (in addition to the above named branches): complete algebra, elements of rhetoric, solid geometry, general history, English literature, elements of chemistry, Latin, embracing four books of Cæsar's Commentaries and four books of Virgil's *Æneid*, or their equivalents.¹

The rules under which the State examinations in Indiana were conducted in 1881 and 1882 were as follows :

(1) Each candidate shall, previous to the opening of the examination, pay to the examiner the sum of five dollars as evidence of his good intention. Said sum can in no case be refunded.

(2) The examiner shall supply the candidate with legal cap paper, pens, and ink for the examination. The answers shall be written with pen and ink. If any corrections are necessary the candidate shall not erase, but shall draw a single mark over the error, that the examiner may see the error as well as the correction.

(3) Each candidate shall be furnished with a printed slip containing the questions upon the given subject, which shall be returned with the examination papers as soon as the subject is completed. The papers shall not be rolled or folded. The name of the candidate shall be written at the top of each page. No slate or trial papers shall be used, but all the writing shall be upon the sheets of the examination papers.

(4) No books shall be consulted nor communication permitted during the examination. A brief recess shall be given between the examinations on the several subjects.

(5) No one shall be permitted to make inquiries respecting the import of any ques-

¹ The State superintendent recommended, in 1882, that the State board of education be empowered to grant three grades of license :

(1) One for a period of ten years, to be styled a "*professional license*," in which the examination shall include the branches usually taught in the elementary schools.

(2) One in which the examination shall cover the branches usually taught in high schools, and which shall be valid for the lifetime of the holder, to be styled a "*life license*."

(3) One which may be granted to those who have attained eminent scholarship, professional ability, and distinction as teachers, without an examination, to be styled a "*life diploma*."

tion. If any one shall be in doubt as to the meaning of a question he shall express his doubt in writing; and this statement shall be submitted to the board with his examination papers.

(6) All the candidates shall commence each subject simultaneously. The time allotted is designated in connection with each subject.

(7) The subjects shall be given to the candidates in the order in which they are arranged by the board.

(8) Any violation of these rules shall be reported by the examiner to the board.—(School law, 1877; Schools of Indiana; and State report, 1882.)

IOWA.

In Iowa licenses have been obtained until quite recently only from the county superintendents, each of whom holds an examination at the county seat on the last Saturday of each month, and may hold others in different localities. Inquiry is made into the candidate's competency and ability to teach orthography, reading, writing, arithmetic, geography, English grammar, physiology, and United States history; also, into his moral character, ability to govern, and aptness to teach. The examinations are almost universally made from questions prepared under the direction of the State superintendent. Certificates are valid one year.

In 1882 the legislature of Iowa created a State board of examiners, consisting of the State superintendent, the president of the State university, the principal of the State Normal School, and two practical teachers, one of them a woman. The board is empowered to make such lawful rules for its guidance as it may deem proper. It must hold at least two public examinations a year and issue certificates and diplomas to successful applicants. The certificates are good for five years and the diplomas for the life of the holder. Teachers receiving either must possess good moral character, thorough scholarship, clear and comprehensive knowledge of didactics, and successful experience in teaching. For a certificate, they are examined in the elementary branches, book-keeping, physiology, United States history, algebra, botany, natural philosophy, drawing, civil government, constitution and laws of Iowa, and didactics; for a diploma, the examination is extended to geometry, trigonometry, chemistry, zoölogy, geology, astronomy, political economy, rhetoric, English literature, general history, and such other branches as the board of examiners may require. State licenses must be registered by the superintendent of the county before the holder commences teaching in any school under his charge.—(School law; Connecticut State report, 1880, and Iowa State report, 1880.)

KANSAS.

In Kansas every teacher must have a county, city, or State certificate or a State diploma. County certificates are granted to such persons as pass a successful examination before a county board of examiners, composed of the county superintendent and two competent per-

sons appointed by the county commissioners. The time and place of holding the examinations are decided upon by the board and at least ten days' notice is given. The certificates are of three grades—*A*, *one*, and *two*—and continue in force two years, one year, and six months, according to grade. Those of the *A* grade certify that the holder is qualified to teach orthography, reading, writing, English grammar, geography, arithmetic, United States history, book-keeping, industrial drawing, and the elements of entomology, of botany, and of geology so far as relating to the formation of soils and their adaptation to the purposes of production. Certificates *one* and *two* certify that the holder is qualified to teach the first seven branches mentioned above. Candidates for positions in graded schools must be examined in the studies they expect to teach and satisfy the board of their competency and capacity to govern and of their good character. County certificates are good only in the county in which they are issued.

Cities in Kansas are divided into three classes: those having less than two thousand and more than two hundred and fifty inhabitants form the third class, those having a population of from two to fifteen thousand inhabitants form the second class, and those having a population over fifteen thousand form the first class. Teachers in third class cities are subject to county examinations. In second class cities they are licensed by a board composed of the superintendent of schools and two competent persons appointed by the city board of education. In first class cities the three members of the examining board are appointed by the board of education. Holders of State licenses are generally exempt from local examination.

The State board of education, consisting of the State superintendent of public instruction, the president of the State Agricultural College, the chancellor of the State University, and the principals of the State normal schools at Emporia and Leavenworth, grants certificates good for five years and diplomas good for life. At the last examination of which this Office has an account (1881) the following qualifications were required of those examined :

QUALIFICATIONS FOR A FIVE YEARS' CERTIFICATE.

To be entitled to a five years' certificate the candidate (*a*) must pass a satisfactory examination in the following branches: (1) English: spelling, reading, penmanship, composition, and grammar, including the structure of words; (2) mathematics: arithmetic, book-keeping, industrial drawing, algebra through quadratic equations, and plane geometry; (3) geography, physical and political; (4) history: United States history, general history, and civil government; (5) physiology; (6) natural philosophy; (7) botany; (8) entomology; (9) geology; (10) didactics: mental science and methods of instruction; (*b*) must have taught one year; and (*c*) must produce satisfactory testimonials from reputable persons in regard to temper, manners, moral character, and professional standing.

QUALIFICATIONS FOR STATE DIPLOMA.

To be entitled to a State diploma, the candidate (*a*) must pass a satisfactory examination in all the branches required for a five years' certificate, together with solid

geometry, political economy, elementary chemistry, and Latin (grammar, reader, Cæsar, and Virgil, or equivalents); (b) must have taught five years, two of which must have been in the State of Kansas; and (c) must present testimonials, as required of candidates for certificates.

An average standing of 90 per cent., with not less than 75 in any topic, is required for a certificate, and of not less than 90 per cent. throughout for a State diploma. Candidates not wholly successful at one examination receive credit in the next in all topics in which they secured 90 per cent. The examinations to which the above rules applied were conducted in four places at the same time. There were fourteen candidates in 1882, four of whom received certificates. The questions asked were numerous and difficult and could not be answered in the time allotted unless the candidate possessed a ready mind and complete familiarity with the various subjects. For those used in 1880, see appendix, page 40. The examination commences on the fourth Monday of August, annually, and occupies over four days, more than 30 hours being assigned for actual work.—(School law; report, 1880.)

KENTUCKY.

In Kentucky teachers must obtain certificates of qualification signed by at least two members of either the county or the State examining board. The county board consists of the county school commissioner and two persons chosen by him as assistants; the State board, of the superintendent of public instruction and two professional educators appointed by him. The county board grants certificates of two classes with two grades in each class. The law prescribes that "those who understand clearly the principles involved in the subjects to be taught, as well as the forms in which they are expressed, shall be entitled to first class first grade certificates; those who know the forms well and have a knowledge of principles, but not clear, shall be entitled to first class second grade certificates; those who know the forms well, but not the principles, shall be entitled to a second class first grade certificate." Further definition of the qualifications necessary to procure a certificate of the several classes and grades is left to the State board of education. It is customary for the superintendent of public instruction to furnish the various boards of examiners with printed questions and to require 75 per cent. of correct answers for a first class first grade certificate, 60 per cent. for a first class second grade certificate, and 50 per cent. for a second class certificate.

The State board of examiners issues only first class first grade certificates. The studies in which candidates are examined are divided into three groups. If a candidate falls below the average required in any group or below the minimum in any study a certificate is not granted. The only studies outside of the usual common school course in which candidates are examined are physiology and hygiene. The State board meets on the first Wednesday of July; the county boards, on the third

and fourth Saturdays of January, July, August, and December. First class first grade certificates are valid four years; others, except temporary licenses, two years.—(School law.)

LOUISIANA.

Teachers are examined by a committee appointed by a parish board of school directors.—(School law.)

MAINE.

On satisfactory evidence that a candidate possesses good moral character and a temper and disposition suitable to be an instructor of youth the members of the superintending school committee examine him in reading, spelling, English grammar, geography, history, arithmetic, book-keeping, and physiology, and such other branches as they may desire to introduce into public schools, and particularly into the school for which he is examined; and also as to capacity for the government of the school. Each candidate found competent receives a certificate showing that he is qualified to govern said school and to instruct in the branches to be taught in the same. The committee may render valid by indorsement any graded certificates issued to teachers by the principals of normal schools, county supervisors, or State superintendent of common schools.—(School law.)

MARYLAND.

In Maryland teachers are examined by the secretary of the county board of school commissioners in the presence of one or more school commissioners or by the State board of education. The regulations of the State board permit the county examiner, under the sanction of the county school board, to classify certificates as first class and second class in each of the two grades into which they are divided. He must take into account in doing this the qualifications of the teacher as shown by the examination and his experience and success in teaching. Certificates of the first grade state that the teacher has been examined in orthography, reading, writing, arithmetic, geography, history, English grammar, book-keeping, algebra, natural philosophy, physiology, and geometry equivalent to four books of Legendre. Certificates of the second grade include the same studies, excepting book-keeping, algebra, and natural philosophy, and the equivalent of one book only of Legendre is required. The first certificate granted to any teacher continues in force for six months (or less), but it may be extended by the examiner making the following indorsement upon it:

The within named ——— having taught for six months in this county and having satisfied me of his fitness for governing a school and his ability to impart instruction, this certificate is valid for three years from the original date.

Certificates of the first class may be renewed without an examination. The county board determines the times and places of holding examina-

tions. They may be continued or adjourned by the examiner. They are chiefly in writing.

If any person has been a teacher seven years, of which five have been spent in Maryland, and holds a first grade certificate or a college or State normal school diploma, he may receive a life certificate on passing a satisfactory examination before the State board of education.

Superintendent M. A. Newell writes:

When I am entirely satisfied with these evidences [of character and experience], the examination is merely formal; but in cases of doubt it is quite strict, embracing the English language, history, geography, arithmetic, algebra, geometry, natural philosophy, book-keeping, and theory of teaching.

The city of Baltimore is allowed to have a system of free public schools conducted under such ordinances as the city officials may pass. A special committee, appointed in 1877 to investigate the public schools of the city, recommended competitive teachers' examinations, but no action has yet been taken on the recommendation.—(By-laws, rules, &c.)

MASSACHUSETTS.

In Massachusetts every teacher of a town or district school must obtain a certificate of qualification from the school committee of the town. In Boston the board of supervisors have charge of the examinations. The following were the regulations in force in 1881 with regard to grades of certificates: "The board of supervisors shall grant certificates of qualification of the several grades, after examination, to such candidates as they shall consider entitled to them, as follows: First grade, to masters and junior masters of high schools and principals of evening high schools; second grade, to masters, submasters, and second submasters of grammar schools, principals of evening elementary schools, and assistants of evening high schools; third grade, to assistant principals and assistants of high schools; fourth grade, to assistants in grammar, primary, and evening elementary schools. No instructor shall be employed in any higher grade of schools than that for which the certificate shall qualify the holder thereof."

At a recent examination (April, 1881) each candidate was required to bring (1) "a certificate of having taught school at least one year, or of having graduated from the Boston Normal School or one of the State normal schools, and also, if he is a candidate for a first grade certificate, of having graduated from a college of good standing or from an institution of as high a grade; (2) a certificate of good moral character; (3) a certificate of health from a physician; (4) testimonials in regard to scholarship, aptness to teach, and success in teaching." The candidates were examined (1) in the subjects they were expected to teach and (2) in other subjects that would indicate training and scholarship and a knowledge of the principles of teaching. "Before granting certificates of qualification, the board of supervisors carefully considers all the evi-

dence it has collected. It gives great weight to successful experience in teaching and governing schools. While not expecting proficiency in all the subjects of examination, it requires candidates to pass a good examination in subjects that they will teach, and to show that they possess good general scholarship." The board suggested in 1880 that it "be allowed to be its own judge of how much and what kind of evidence it should collect in order to decide whether or not a candidate is qualified to receive a teacher's certificate."—(School law and circular.)

MICHIGAN.

Certificates are granted by the State board of education, by the board of instruction of the normal school to its graduates, and by county examining boards. State certificates are granted to persons furnishing satisfactory evidence of good moral character and possessing eminent scholarship and professional ability, as shown by a critical examination. These certificates are valid ten years. The county board of examiners must hold two public examinations and may hold a limited number of special public examinations. Teachers found qualified in respect to moral character, learning, and ability must be licensed; but no certificate is granted to any person who does not pass a satisfactory examination in orthography, reading, writing, grammar, geography, arithmetic, the theory and art of teaching, and history of the United States and civil government. There are three grades of certificates. Those of the first grade are given to persons who have taught at least one year with ability and success, and are valid throughout the county where issued for three years; those of the second grade are given to persons who have taught six months, and are valid two years; and those of the first grade are valid one year. Special certificates, good until the next public examination, may be granted by the secretary of the board of examiners.—(School laws.)

MINNESOTA.

In Minnesota teachers are examined by the respective county superintendents. For this purpose at least three meetings are held each spring and fall. The studies in which candidates are examined are orthography, reading, penmanship, arithmetic, grammar, modern geography, United States history, and elements of hygiene. The examinations are both oral and written, and questions are required to be asked with a view to ascertaining both ability to impart oral instruction and satisfactory knowledge of the required branches. The certificates are of three grades, according to standing in examination, except that candidates for a first grade certificate must also be examined in elementary algebra, elementary plane geometry, physical geography, physiology, natural philosophy, civil government, and the theory and practice of teaching. A first grade certificate is valid in the county ~~two~~
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years; a second grade, one year; a third grade, six months in a specified district only. Teachers in independent districts are examined by persons appointed by the district board of education, or, at the request of the board, by the county superintendent. — (School law, 1877.)

MISSISSIPPI.

County superintendents are given the power of licensing teachers in Mississippi. They themselves are required to pass an examination upon (1) their educational qualifications, (2) their habits and character, (3) their executive ability. They prescribe their own rules for the conduct of the teachers' examinations, but are directed by law to give three grades of certificates, each of them valid in the county "during one year from the first of January," and specifying the scholastic year for which it is given. A first grade certificate shows that the holder is thoroughly qualified to teach the higher branches of English literature, natural philosophy, elements of book-keeping, and all studies usually taught in common schools. A second grade certificate shows that the holder is qualified to teach the intermediate branches of arithmetic, geography, grammar, spelling, reading, and writing, and a third grade certificate is evidence of qualification to teach the elementary branches of arithmetic, spelling, reading, and writing. — (School law.)

MISSOURI.

Teachers are examined and certificated in Missouri by either the county commissioner or the State superintendent of public schools. The county commissioner holds public examinations at such places as he chooses, and, by the recommendation of the State superintendent, usually on the first Saturdays of January, April, July, and October. A uniform set of questions is prepared by the State office for the use of commissioners applying in season. The subjects of examination are the common branches for second class certificates, and additional branches, among them the elements of the natural sciences and physiology, for a first class certificate. Each class has two grades of certificates, corresponding with the degrees of proficiency exhibited in the examination. The longest time for which a county certificate can be issued is two years and the shortest one year. Certificates valid for more than one year are granted at the discretion of the commissioner to those passing examination in other than the elementary common school branches. When the county commissioners are competent, the method of examination is satisfactory in its influence upon the quality of teachers employed. — (School law, 1879; Connecticut report, 1880.)

NEBRASKA.

City, county, and State certificates are granted in Nebraska. City certificates are given by an examining committee appointed by the board

of education. The State law does not prescribe any rules or limitations with respect to these examinations. County certificates are given by the county superintendents and are of three grades. A third grade certificate is valid in some special district for not more than six months. It is granted to persons passing a satisfactory examination in orthography, reading, writing, geography, arithmetic, physiology, English composition, and English grammar. A second grade certificate, valid throughout the county one year, is granted to persons of approved learning and character, who, in addition to the branches already specified, pass a satisfactory examination in United States history, civil government, book-keeping, blackboard drawing, and the theory and art of teaching. A first grade certificate is valid in the county two years. It is issued to no person who shall not have taught at least one year with ability and success and passed an examination in the branches required to obtain a second grade certificate and in algebra, geometry, botany, and natural philosophy. The examinations are held on the first Saturdays of February, May, August, and November, and at such other times and places as the superintendent may appoint. The provisions relating to State certificates are as follows:

Permanent teachers of high character and broad scholarship, and who have a successful experience, may, upon examination by the State superintendent or by a committee of three competent teachers appointed by him, receive a professional State certificate, which shall authorize the holder to teach in any public school in the State without further examination: *Provided*, That no life certificate shall be in force after its holder shall permit a space of three years to elapse without following some educational pursuit, unless said certificate be indorsed by the acting State superintendent: *Provided further*, That graduates of colleges and universities of good standing who have received a certificate of the first grade in this State and who shall have taught in any high school in the State with ability and success for at least three years shall be entitled to a professional certificate without further examination. The branches required for a professional State certificate shall be the following, to wit, written arithmetic, United States history, reading and elocution, English grammar, common and physical geography, with map drawing, mathematical geography and projection, school economy, physiology, algebra, natural philosophy, chemistry, composition and rhetoric, book-keeping, plane and solid geometry, plane trigonometry, geology, zoölogy, botany, English literature, general history, political economy, intellectual philosophy, moral philosophy, logic, astronomy, civil government and school laws, history of education, and the theory and art of teaching.—(School law, 1881.)

NEVADA.

Teachers are examined in Nevada by a county board of examination, consisting of the county superintendent and two competent persons appointed by him. Two grades of certificates are granted to persons passing a satisfactory examination in the branches pursued in the grade of school in which they are to teach and furnishing evidence of good moral character. A first grade certificate licenses the holder to teach an unclassified, grammar, or high school, and is good two years. A second grade certificate is a license to teach a primary school one year. The examinations are held at the option of the examining board,

and conducted according to rules and regulations prescribed by the State board of education.—(School law.)

NEW HAMPSHIRE.

In New Hampshire the township school committee examines all persons who propose to teach school in the town, provided they be of good character and of suitable temper and disposition, in such branches as are usually taught in schools similar to the one the candidate intends to teach.—(School law.)

NEW JERSEY.

The rules and regulations for teachers' examinations in New Jersey, as prescribed not long since by the State board of education, are substantially as follows: There are city, county, and State boards of examiners. The county examiners consist of the county superintendent and such other persons as he may appoint. They hold examinations on the last Friday of August and last Saturdays of February, May, and November, at such places as are most convenient of access. Three grades of certificates are issued. In order to be eligible for a third grade county certificate a person must be not less than sixteen years old and pass an examination in orthograpy, reading, writing, geography, practical arithmetic, and English grammar. The license continues in force one year from date. Candidates for the second grade county certificate must be not less than seventeen years of age, with an experience of not less than one year in teaching. The examination is the same as that for a third grade certificate, with the addition of United States history, book-keeping, and theory and practice of teaching. The license continues in force three years. Candidates for the first grade county certificate must be at least eighteen years old and must have had two years' experience in teaching. The examination adds to that for a second grade certificate physiology, natural philosophy, English composition, algebra, the Constitution of the United States, and the school law of New Jersey. The license remains in force five years. The questions for these examinations are prepared under the direction of the State superintendent.

The State board of examiners consists of the State superintendent of public instruction and the principal of the State Normal School. Three grades of State certificates are given, the lowest being one grade higher than the highest county certificate. Candidates for this certificate must be not less than nineteen years old and pass an examination in the branches required for a first grade county certificate and in geometry, trigonometry, chemistry, geology, and botany. The license is for seven years.

Candidates for a second grade State certificate must be not less than twenty-one years old and have had an experience of not less than two years. The examination is the same as for a third grade certificate and the license is for ten years.

Candidates for a first grade certificate must be at least twenty-five years old and have had not less than four years' experience. The examination is the same as for the second and third grade certificates, except that two works on education are added. Each candidate is also required to draw up a plan for organizing the schools of some large city. The license is for life.

With the exception of reading, vocal and instrumental music, elocution, drawing, and school gymnastics, all examinations are conducted in writing. Special credits are given for ability to teach the last four of these branches. Licenses are not granted to those whose general average falls below 70 or whose special average in any one of the studies required for the third grade county certificate shall be less than 70. Testimonials from responsible persons must be furnished as to moral character and time and place of teaching. Second and third grade county certificates are good only in the county in which they are issued; all others are good throughout the State.

The number of applicants who failed to pass the examination required for county certificates in 1881 was 859. The percentage of rejections varied from 10 to 52 in the several counties.—(School law, State report, 1881.)

NEW YORK.

The school commissioners (who have jurisdiction over one or more towns in their respective counties) have authority to examine and license teachers. There are also two classes of licensed teachers other than those who have received certificates from commissioners, city superintendents, or boards of education specially authorized to grant them. These are normal school graduates and persons holding State certificates. The body of the circular for 1881 sent out by the State superintendent, giving notice of the examinations for State certificates, was as follows :

In pursuance of the law of 1875, I have ordered that examinations of applicants for State certificates be held, commencing Tuesday, the 12th day of July, 1881, at 2 o'clock P. M., at the high school buildings in Albany, Brooklyn, Buffalo, Elmira, Plattsburgh, Syracuse, and Watertown. The examinations will, as heretofore, be conducted by competent persons, the results reported to me, and such of the candidates as have given satisfactory evidence of their learning, ability, and good character will receive certificates qualifying them to teach in any of the public schools of the State without further examination. Candidates must be present at the beginning of the examination, produce testimonials of character, and must have had at least three years' experience as teachers. They must pass a thorough examination in the following named branches: Reading, spelling, writing, grammar and analysis, composition, geography, outlines of American history, arithmetic, elementary algebra, and plane geometry (or Latin). They will also be expected to have a general knowledge of book-keeping, rhetoric, the natural sciences, linear and perspective drawing, general history, general literature, methods, school economy, civil government, and school law.

The examinations will be open to candidates residing in any part of the State and to such residents of other States as declare it to be their intention to teach in this State.

In 1880 forty-seven candidates presented themselves, of whom twenty were successful.

An elaborate account of his teachers' examination is given by Hon. C. D. Elmer, commissioner in Suffolk County, in the report of the State superintendent for 1879. Mr. Elmer issued a circular stating that all teachers in his district must be examined in the subjects named by him in it. Although there was much local opposition to the execution of the law granting him power to reëxamine teachers, yet his plan was successfully carried out, the examination was met, and the candidates generally passed a thorough and comprehensive examination. The practice of requiring written examinations is being adopted generally in New York, and with equally good results. From the report of the State superintendent of schools for 1880 the following quotations from the reports of commissioners are taken :

A few certificates were given on good work in teaching; the others were given on a written examination with some oral work, and, in addition to the examination, some successful experience in teaching was required for the first and second grades.

The examinations have been mainly written. Written (not printed) sets of questions, prepared in times of leisure, are given to the candidates. They are required to commence at the first question or problem, write it, and follow it with the answer or solution, if they are able to give it, and so continue through the exercise. The examination paper is indorsed with the name of the candidate submitting it, place where he or she intends to teach, and such other facts as may be deemed necessary, and filed. These papers are open to the inspection of trustees and others who may desire to examine them from proper motives. Up to within two years examinations for each of the grades of certificates were the same. First grade certificates were granted as a recognition of successful experience in teaching, rather than from any superior knowledge of books. For the last two years some problems in higher mathematics have been added to the second grade examination for candidates for a first grade certificate.—(School law and State report.)

New York City.—The city superintendent of schools, or such one of his assistants as he may designate, in the presence of at least two inspectors of common schools, examines into the qualifications of persons proposed as teachers in any of the schools under the charge of the board, according to such rules as said board may establish. Provisional and permanent licenses are granted. The subjects in which candidates for full licenses are examined are reading, spelling, English grammar, history, English literature, arithmetic, algebra, geometry, astronomy, natural philosophy, chemistry, zoölogy, physiology, and principles and methods of teaching. No person receives a permanent license who is not familiar with all the subjects he may be called on to teach and the method of teaching them, nor until he has had at least six months' experience as a teacher in one or more of the schools under the charge of the board. The examinations are partly oral and partly written.—(School manual.)

NORTH CAROLINA.

The various county superintendents of North Carolina examine all worthy applicants at the court houses of their respective counties on

the second Thursdays of January, April, July, and October. Licenses are granted to those who do not fall below fifty in any branch, as follows: To those whose average is ninety or more, first grade certificates; to those whose average is between eighty and ninety, second grade certificates; to those whose average is between seventy and eighty, third grade certificates. The only studies in which a candidate for a third grade certificate is of necessity examined are spelling, reading, writing, and the four fundamental rules of arithmetic. All certificates are valid, in the county only, one year.

OHIO.

Certificates are granted by city, county, and State examiners. The boards of education in large villages and cities appoint boards of examiners, which grant certificates to persons who, being of good moral character, possess an adequate knowledge of the theory and practice of teaching and are qualified to teach orthography, reading, writing, arithmetic, geography, English grammar, United States history, and other branches in which they will be required to give instruction. Certificates are valid one, two, or three years, at the discretion of the examiners.

County certificates are granted by a board of examiners consisting of three persons appointed by the probate judge. It grants regular certificates for twelve, eighteen, twenty-four, or thirty-six months, valid in the county where issued, on conditions like those mentioned in connection with the requirements for city certificates. Trial certificates, valid six months, are also granted; and recently examiners have been empowered to grant certificates for five years to such qualified applicants as have been engaged in teaching three years immediately preceding application, one-half of which time shall have been in one place. These certificates are made renewable without examination at the discretion of the examining board.

The State board of examiners consists of three persons appointed by the State commissioner of common schools. It grants life certificates on examination to persons of experience, character, ability, and scholarship. In the examination of 1881 applicants were to present recommendations from leading educators of the State and certificates from boards of education showing five years or more of skilful and eminently successful teaching. They were examined in reading and orthoepy, writing and orthography, arithmetic, geography, English grammar, United States history and Constitution, political economy, science of education (Bain's Education as a Science being taken as a basis), physics, algebra, geometry, English and American literature, and physiology and school hygiene; also, in three branches selected from the following list: Latin, Greek, German, French, botany, astronomy, geology, chemistry, and plane trigonometry.—(School laws; State report, 1881.)

OREGON.

The State board of education, together with teachers whom they may invite, constitutes a board of examination, which grants diplomas and certificates. A county board of examination also grants certificates. Information about examinations and licenses was given officially in 1880, as follows:

The regular meetings of the State board of education and of the State board of examination occur on the first Mondays of January and of July in each year, at the capital of the State.

In addition to these stated examinations of applicants for State and life diplomas and State certificates, the superintendent of public instruction, assisted by any members of the State board of examination whom he may call to his aid, is authorized by the board of education to hold examinations, with questions prepared by the board of examination, at any time and place he may deem advisable. In all such examinations the papers of all persons examined must be returned by the superintendent of public instruction to the State board for determination of standing and final action.

In State examinations, applicants must answer for life diplomas 90 per cent. and for State diplomas 75 per cent. of the questions asked in the following branches: Orthography, reading, writing, mental and written arithmetic, English grammar, descriptive and physical geography, modern history, algebra, theory and practice of teaching, school law of Oregon, physiology, geometry, composition, English literature, book-keeping, natural philosophy, and Constitution of the United States.

For State certificates, applicants must answer for first grade 90 per cent. and for second grade 75 per cent. of the questions asked in all the above branches, except geometry, composition, English literature, book-keeping, natural philosophy, and Constitution of the United States.

In addition to the above requirements, the applicant, before receiving a life diploma, must be twenty-five years of age and must have taught successfully at least six years, three of which must have been within this State; and before receiving a State diploma the applicant must be twenty-one years of age and must have taught, with success, at least four years, two of which must have been in this State; and before receiving a first grade State certificate the applicant must be eighteen years of age and must have had at least one year's successful experience as a teacher.

If, at any of the examinations conducted by authority of the State board, it shall be found that any applicant has answered 90 per cent. of the questions asked him in any one or more branches, but has not received the required per cent. in a sufficient number of branches to entitle him to a life diploma or first grade State certificate, his standing in examination shall be recorded in a book kept for that purpose, and if at any future time, within two years after the first examination, he should apply for

another examination, he shall not be required to pass any further examination in those branches in which, at any previous examination, he has answered 90 per cent. or more of the questions asked, but shall be required to pass examination in those branches only in which he has failed to answer 90 per cent. of the questions asked at any previous examination.

The fees charged for diplomas and certificates are as follows:

For life diploma, \$10; for State educational diploma, \$6; for first grade State certificate, \$4; for second grade State certificate, \$2.50.

A life diploma gives authority to the holder to teach in any of the public schools in this State during life; a State educational diploma, for the period of six years; a first grade State certificate, for the period of two years; and a second grade State certificate, for the period of six months.

The county board of examination, consisting of the county school superintendent and not less than two professional teachers whom he may call to his assistance, hold quarterly examinations during the last weeks of March, June, September, and December, and have power to grant first grade county certificates, good for two years, and also second grade county certificates, good for six months. Certificates granted at quarterly examinations are free.

The county superintendent has power to examine applicants and grant certificates at any time, for which a fee of \$2.50 is charged.

PENNSYLVANIA.

Examinations in Philadelphia are intrusted to the controller of the public schools; in other cities, to the city superintendents; in the counties, to the county superintendents. State certificates are also given.

County superintendents are elected from those who are known to be qualified by education and experience for the position. It is the duty of each one to give every person found qualified a certificate setting forth the branches of learning he or she is capable of teaching. The directors of the district in which the examination is held must be invited to be present. No person is allowed to teach any other branches than those appearing on his certificate, and a certificate must be renewed when additional studies are to be taught.

A certificate cannot be granted legally by any county, city, or borough superintendent to any person who has not a fair knowledge of orthography, reading, writing, geography, English grammar, mental and written arithmetic, history of the United States, and the theory of teaching, nor to any person who is in the habit of using, as a beverage, any intoxicating drinks. To other persons superintendents may issue two grades of certificates, provisional and professional. Provisional certificates are given to applicants possessing a fair knowledge of the branches named above, but having had little or no experience. They are valid one year only. Professional certificates are given only to those who

possess a thorough knowledge of the branches named and have had successful experience in teaching. They are valid one year and may be renewed without reëxamination.

The State superintendent may grant permanent certificates to practical teachers holding professional certificates on recommendation of the school directors in whose employment the applicant has taught during the three preceding terms, the recommendation being countersigned by the supervising officer. An examination may be required. These permanent certificates are valid where issued till revoked, and in other counties, cities, or boroughs for one year, at the expiration of which time they may be given, by the indorsement of the superintendent, the force possessed by them where issued.

Another method of obtaining State certificates is quite peculiar. A board of normal school principals examines the candidates for graduation from the normal schools, and with them any persons who bring evidence of having taught three or more years. Certificates of scholarship are given to those who satisfy two-thirds of the members of the board of their fitness. The certificates set forth that their holders are proficient in orthography, reading, writing, English grammar, geography, arithmetic, and such other branches as the board may prescribe, including the theory but not the practice of teaching. Whenever the holder of a certificate is prepared for examination in any studies not mentioned in the one which he already possesses, he may attend the annual examination of the normal school of his district, and, if there found qualified, receive a new certificate setting forth all the studies in which he has up to that time been found proficient. Throughout the State these certificates obviate the necessity of an examination in the branches enumerated in them. After any holder of a certificate of scholarship has taught a specified time—two years for normal graduates and three years for other persons—a full certificate of competency in the practice of teaching may be added, provided the teacher is twenty-one years of age and brings evidence of good moral character and successful teaching for the required time. This certificate is full evidence of practical qualification to teach in any part of the State and license to do the same without further examination.

Thus the complications of the law about licensing teachers and the latitude given to examiners account for five kinds of certificates. County and city superintendents give provisional certificates to beginners in teaching and to persons of moderate scholarship, which are good for one year. They also give professional certificates to skilled teachers. These are valid during the term (three years) of the superintendent granting them and for one year thereafter. As a result of the normal examinations there are given teachers' normal certificates, good for two years, and teachers' normal diplomas, good for life. The fifth class of certificates is the permanent State teacher's certificate.—(School law.)

RHODE ISLAND.

Teachers are examined by township committees, examiners appointed by them, or by superintendents, and the examinations vary in methods and efficiency. Normal school graduates are also licensed to teach.

SOUTH CAROLINA.

Certificates are granted by county and by State boards of examiners. The county board of examiners consists of the county school commissioner and two persons appointed by the State board of examiners. It holds examinations at least twice a year, which are conducted principally in writing, and grants certificates of three grades, valid one year, to those passing in the common branches.

The State board of examiners consists of the State superintendent of education and four persons appointed by the governor. It has power to prescribe and enforce rules for the examination of teachers, to prescribe a standard of proficiency for county boards of examiners which will entitle persons examined by them to certificates, and to grant certificates valid two years.—(School law.)

The following rules for the examination of applicants for the position of teacher in the public schools were adopted by the State board of examiners in 1878, and were known to be in force not long since:

(1) All examinations before county boards of examiners must be in writing, except the examination in reading, and must be conducted on questions prepared by the State superintendent of education, separate questions to be prepared for each of the three grades.

(2) The number 10 to be the maximum mark, and no applicant whose average at an examination is less than 8 on all the branches to receive a certificate.

(3) That at all examinations before county boards at least two members of the board must be present.

(4) That applicants before county boards shall be examined in orthography, reading, writing, arithmetic, geography, English grammar, history of the United States and of this State.

(5) That applicants for teachers' State certificates must appear before the State board of examiners at the regular meetings, which will be held in Columbia during the first week in May and the first week in September of each year, and that, in addition to the branches of study mentioned in the foregoing rule, said applicants will be examined in algebra, natural philosophy, and physiology.

TENNESSEE.

Examinations are held by the county superintendents and licenses granted by them as the State superintendent may direct. The principal recommendations which he appears to have made in 1880 are that the examinations be held in connection with county institutes, that they be in writing, and that no one shall be examined at other than a public examination without rendering satisfactory reasons for their absence therefrom.—(School law.)

TEXAS.

Teachers are examined by a board appointed by the county judge, who issues certificates to those recommended by the board, which are valid for one year in the county where issued, and may be renewed without an examination. They are of three grades. Applicants for a first grade certificate are examined in orthography, reading, writing, arithmetic, geography, English grammar and composition, history of the United States, and the elementary branches of algebra, geometry, and natural philosophy, school discipline, and methods of teaching; for a second grade certificate, in the first seven branches mentioned above; for a third grade certificate, in the first five branches.—(School law.)

VERMONT.

In Vermont, town, county, and State licenses are granted. Town licenses are granted by the school superintendents of the various towns. Teachers are required to attend the public examinations, which are held semiannually and are conducted principally in writing. The questions used and the standard of qualifications required are agreed upon at a meeting of the township superintendents of each county. At this meeting a county board of examiners is appointed, two of whom must be practical teachers and the third a town superintendent. The State examining boards consist of the State superintendent of education and two teachers.

No qualifications are required for admission to the township examinations; for admission to the county examination, women must be eighteen years of age and men twenty—either must have taught at least ten weeks; to be admitted to the State examination, a person must have completed at least one course of study in a State normal school.

Township licenses are valid until the succeeding June after they are granted; county licenses, five years; State licenses, five or ten years.—(School law.)

VIRGINIA.

Teachers are examined in Virginia by the county superintendents, under the direction of the State superintendent.

WEST VIRGINIA.

County certificates and professional life certificates are granted respectively by county and State boards of examiners. The county board of examiners is composed of the county superintendent and two experienced teachers. It examines each candidate for the profession of teacher who may apply, as to his or her y to teach orthography, reading, penmanship, arithmetic, ar, geography,

history, and such other branches as are required in the school to be taught. The following regulations are prescribed by law:

(1) No applicant shall be admitted to an examination unless the board shall have reasonable evidence that he or she is of good moral character and temperate habits.

(2) No college diploma or certificate or recommendation from the president or faculty of any college or academy shall be taken to supersede the necessity of examination by the board of examiners, nor shall a certificate be granted to any applicant except after a careful examination upon each branch of study and upon the art of teaching.

(3) Boards of examiners and others herein authorized to confer certificates shall state the teacher's grade of proficiency in each branch in which he is examined.

(4) They shall grade the certificates granted according to the following scheme, numbering them, according to the merit of the applicant, from one to five; number three shall be assumed as the medium between a very good and an indifferent teacher, so that the scheme will stand thus: Number one, a very good teacher, one accomplished in every respect; number two, a good teacher; number three, medium; number four, below medium; and number five, indifferent. A number five certificate shall never be granted to a teacher more than once. If upon second examination the applicant is not found entitled to a higher grade no certificate shall be granted in the county or in any other county of the State. A number four certificate shall not be granted more than twice in succession to the same applicant in the same or in any other county of the State. If, at the third examination, the applicant is not found entitled to a higher grade, no certificate shall be granted.

WISCONSIN.

City, district, and State licenses are issued in Wisconsin. City certificates are given by the school officials of the various cities. District certificates show the branches in which the holder has been examined and his relative attainments in each branch. They are of three grades. Applicants for the third grade are examined in orthoepy, orthography, reading, penmanship, arithmetic, English grammar, geography, history of the United States, constitutions of the State of Wisconsin and the United States, and the theory and art of teaching; for the second grade, in the foregoing and in grammatical analysis, physiology, physical geography, and elementary algebra; for the first grade, in those branches mentioned and in higher algebra, natural philosophy, and geometry. A third grade certificate entitles the holder to teach for such a period as may be mentioned in it, not exceeding a year, and may be limited to a specified town or school district. A second grade certificate entitles the holder to teach in any town of the superintendent district in which it was issued, and is in force one year. A first grade certificate is of the same force and of two years' duration.

Each county superintendent, under the advice and direction of the State superintendent, establishes for his district the standard of attainment in each branch of study which must be reached by each applicant before receiving a certificate of either grade. If any applicant is refused a certificate he may appeal to the State superintendent.

State certificates are granted by the State superintendent to those

persons who bring such evidence of good moral character and experience and success in teaching as he may require, and who pass an examination before three persons appointed by him. It is proposed that, instead of receiving promiscuous recommendations, "a blank be prepared with questions searching into the applicant's professional and personal worth to hold a State certificate, and such blank be sent to persons acquainted with the applicants, with the request to fill and return to the State superintendent; and such answers have an important bearing upon the success of the applicants." The examinations have usually been held once a year at one place, but will hereafter be held at separate places at the same time, each examiner conducting one examination, sending the answers to the others for marking, and meeting as soon as convenient to decide upon merits. A limited certificate qualifies a person to teach in any public school in the State for five years, and is given to persons of three terms' experience passing an examination in mental philosophy and English literature and the studies required for a first grade county certificate, and also to such persons as have completed the elementary course in a normal school and taught successfully one year. An unlimited State certificate is valid throughout the State during the life of the holder. It is given to teachers of three years' experience who pass an examination in such studies as may be prescribed, including those required for a limited certificate. The extra studies prescribed are botany, zoölogy, geology, political economy, and general history. Such certificates are granted also to graduates from the full normal course after a year's successful service and to graduates of Wisconsin colleges and universities after sixteen months' successful experience.—(School law.)

APPENDIX.

QUESTIONS USED AT THE STATE TEACHERS' EXAMINATIONS IN ILLINOIS AND KANSAS, 1880.

EXAMINATIONS FOR STATE CERTIFICATES, ILLINOIS, 1880.

READING.

[The numbers in parentheses indicate credits for full answers.]

1. (10). Copy the following: but put in place of each query mark a representative of the sound cognate to that of the letter above or below the query mark. How does a knowledge of the cognate relations of letters aid in teaching reading?

p: f: j: f: v: f: z: f
f: d: f: k: f: th: f: sh.

2. (10). What is meant by "c soft"? "g soft"? Give the rule for c and g, with exceptions. When should *sion* be pronounced *shun*?

3. (10). What is the "word method" of teaching children to read? The "phonic method"? Mention a distinct claim that is set up for each; an objection urged against each.

4. (10). Name four leading defects of reading as heard in the schools; also name an aid in removing each of these defects.

5. (10). Give the derivation of five of the following words: *enormous*, *carnivorous*, *docile*, *graduate*, *legislate*, *cereal*, *astrologer*, *principle*.

6. (5). Compare the degrees of force required on the different uses of that in the sentence "All that look for that result forget that the world moves."

7. (30). Define *dubious*, *fragile*, *allege*, *deliquesce*, *dissemble*, *incarnate*, *council*, *placate*, *mediocrity*, *feint*, *erratic*, *insidious*, *counsel*, *prophecy*; give two meanings of *essay*, *affect*, *precedent*.

8. (15). Syllabicate the following words, mark the primary accent, and indicate (by macron or other fit sign) the sound of the accented vowel: *inquiry*, *acclimated*, *misconstrue*, *exquisite*, *irrefragable*, *museum*, *mischievous*, *precedence*, *communist*, *peremptory*.

ARITHMETIC.

1. When it is 1 P. M. in long. $38^{\circ} 15' 22''$ E., what time is it in long. $68^{\circ} 28' 39''$ W.? Explain the work.

2. How many half eagles, each weighing 5 pwt. 9 gr. and made of gold $\frac{9}{10}$ pure, are equivalent to 1,000 English sovereigns, each weighing 5 pwt. 3.274 gr. and made of gold $\frac{9}{10}$ pure? Perform by analysis and show work.

3. $\frac{11}{15} \div \frac{7}{23} = \text{what?}$ $\frac{11}{15} \times \frac{7}{23} = \text{what?}$ Give analysis of each.

4. Troy weight. Add 2 lbs. $6\frac{1}{2}$ oz.; $1\frac{1}{2}$ lbs.; 12.68 pwt.; 11 oz. 13 pwt.; $19\frac{1}{2}$ grs.; $\frac{1}{2}$ lb.; $\frac{1}{8}$ oz.; $\frac{1}{4}$ pwt.

5. Date of note April 10, 1844. Prin. \$2,460. Rate of int. 8%. Indorsements: Aug. 20, 1845—\$840. Dec. 26, 1847—\$235.20. May 2, 1848—\$1,000. What was due Aug. 20, 1849? Show all the work.

6. How many kinds of problems are there in commission? Give and perform a problem illustrating each kind.
7. What is the difference between the compound interest (compound annually) and the annual interest at $7\frac{1}{4}\%$ on \$428.50 for 4 yrs. 6 mos. 12 days? Show all work.
8. By proportion. If 18 pipes, each delivering 6 gal. per minute, fill a cistern in 2 h. 16 min., how many pipes, each delivering 20 gal. per minute, will fill a cistern $7\frac{1}{4}$ times as large as the first in 3 hr. 24 min.?
9. Define ratio, complex fraction, G. C. D., average of accounts, decimal fraction.
10. The G. C. D. is the product of what? The L. C. M. is the product of what? What does the inverted divisor show? Why do you point off numbers in the extraction of roots? What is the meaning of: and of: in proportion?

GRAMMAR.

[The number in parentheses indicates the credit that will be given if the question is fully answered.]

1. (10). Show fully the office of the underlined words in the sentence: The *moment* my business *is* arranged I must set *about* making you my clerk.
2. (15). To what phrase is each of the following words equivalent? *There, hither, whence*. There are six other words kindred to these; write them. Remark on the infrequency of some of these.
3. (15). Correct the following, giving reasons:
 - a. "Let each esteem others better than themselves."
 - b. "Two nouns, when they come together and do not signify the same thing, the former must be in the possessive case."
 - c. "It is not me that he is angry with."
 - d. "I fear we will have rain."
 - e. "His wrath will consume ye."
4. (20). Analyze:

"Spake full well in language quaint and olden,
One who dwelleth by the castled Rhine,
When he called the flowers, so blue and golden,
Stars, that in earth's firmament do shine."
5. (10). What is the special use of *mine, thine, &c.*? Complete the list, in both numbers. Remark on the word *whereon* and its clause in the sentence: "I know a bank whereon the wild thyme grows."
6. (15). Describe and exemplify five uses of *what*.
7. (15). Remark on ellipses with *as* and *than*. Use each of the following words as an adverb, then as a connective: *yet, then, when, otherwise*.

GEOGRAPHY.

1. Define an axis, latitude, an isthmus, a promontory, a strait. Give an example for each of the last three.
2. Bound fully Illinois and describe its surface.
3. Name, in order, the States bounded by the Mississippi River, and name the chief cities on its banks.
4. Give the branches of the Illinois River and name the chief towns on its banks.
5. Name five famous volcanoes, and tell where each is situated.
6. Describe the silvas of South America.
7. What is a continent? Name the six continents in the order of their size.
8. What bodies of water would you pass over in making a voyage from Chicago to St. Petersburg? Near what great cities would you pass?
9. What countries produce large quantities of cotton? Tea? Silk? Sugar? Wine?
10. What changes did the Franco-Prussian war make in the map of Europe?

THEORY AND ART OF TEACHING.

1. What are the purposes of a public school and how are these best secured?
2. Name the advantages of a system of public schools; of parochial or religious denominational schools; of private schools.
3. What is meant by the organization of a school?
4. What is the value of examinations at stated times and what is the best method of conducting them?
5. What differences, if any, should be made in conducting recitations and giving instruction in primary and in advanced classes?
6. Give a description of the methods of conducting recitations; as, the memoriter, topical, catechetical, and others, if you think of any. Which is best, and your reasons?
7. What can a teacher do to secure and promote health and physical culture, as well as social and moral culture, among his scholars?
8. What are the reasons for the State's requirement of certain qualifications, literary and moral, in persons seeking to become teachers? What should be the minimum of these qualifications?
9. How far should the text be followed in recitations and how can a teacher ascertain that his pupils have learned the lesson?
10. State, with reasons in brief, your opinion of the practice of giving daily grades for recitations, and of averages summed up. Also give your opinion of percentages of absence and tardiness.

UNITED STATES HISTORY.

1. Give a brief account of the settlement of Plymouth.
2. When and by whom was each of the thirteen original Colonies settled?
3. Give the chief causes of the Revolution.
4. Give an account of the battle of Bunker Hill.
5. Say what you can about the "Articles of Confederation."
6. Give a list of the Presidents previous to 1836, in order, with dates.
7. Mention the chief battles in the war with Mexico.
8. Say what you can about the thirteenth amendment to the Constitution.
9. Say what you can about "Mason & Dixon's line."
10. Say what you can about Andrew Jackson.

ALGEBRA.

1. Define algebra, equation, series, reciprocal, permutation.
2. Demonstrate that $x^n + y^n$ is divisible by $x + y$ when n is odd.
3. Factor $7x^2 - 12x + 5$. Show work.
4. Simplify $\frac{\frac{a+x}{a-x} + \frac{a-x}{a+x}}{\frac{a+x}{a-x} - \frac{a-x}{a+x}}$. Show work.
5. If A does a piece of work in 10 days which A and B together can do in 7 days, how long would it take B to do it alone?
6. Extract the cube root of—

$$x^6 - 9x^5 + 39x^4 - 99x^3 + 156x^2 - 144x + 64.$$
 Show work.
7. In the equation, $x + a = \sqrt{a^2 + x} \sqrt{b^2 + x}$, $x =$ what?
8. Write the forms of the two roots in each of the following equations:
 $(a) x^2 + px = q$; $(b) x^2 - px = q$; $(c) x^2 + px = -q$; $(d) x^2 - px = -q$.
9. Expand, by the binomial formula, $(1 + x^2)^7$.
10. Derive the formula for the sum of the terms of an arithmetical progression, the first term, the last term, and number of terms being given.

ESSAY.

Subject: "Death and funeral of Abraham Lincoln."

GEOMETRY.

[The number in parentheses indicates the credit that will be given if the question is fully answered.]

1. (10). Define *plane*, *perpendicular*, *perimeter*, *inscribed angle*, *sector of a circle*.
2. (25). Complete the following and prove:
 "If from a point without a straight line, a perpendicular be let fall on that line and oblique lines be drawn to different points in the same line ;
 1. The perpendicular will be — — —
 2. Any two oblique lines that meet the given line at equal — — —
 3. Of any two oblique lines, that which — — —"
3. (20). "Through three given points not in the same straight line, one circumference of a circle can be made to pass, and but one." Prove.
4. (20). "If a straight line be drawn in a triangle parallel to one of the sides, it will divide the other two sides proportionally." Prove.
5. (20). Write all you can in fifteen minutes of the meaning and derivation of the formula πR^2 .
6. (5). Define each of the "three round bodies." Give the rule for finding the volume of each.

PHYSICAL GEOGRAPHY.

1. What is a zone? How many degrees wide is the temperate zone? The torrid zone? On what condition would the temperate zone be 10° wide?
2. Give briefly, but clearly, as many reasons as you can for believing that the earth is flattened at the poles.
3. Explain the tides as fully as you can.
4. Why are the days longer in the summer than in the winter? Explain clearly.
5. Describe the Appalachian mountain system.
6. Describe briefly the Highlands of Asia.
7. What can you say about volcanoes?
8. Describe fully the monsoons.
9. Describe the rains in the tropics.
10. Tell all you can about the Gulf Stream.

SCHOOL LAW.

1. State fully the condition that must be complied with before one can make a valid contract to teach a public school operated under the general school law.
2. What facts must the schedule show? State the law regulating the keeping, the delivery, and the filing of schedules.
3. Upon what conditions may pupils of lawful school age, residing in one district, have free tuition in another district?
4. When do teachers' orders begin to draw interest, and for what time can interest on them be collected?
5. What authority of law, if any, is there for teaching algebra in the public schools?
6. For what purposes and to what extent are school directors authorized by law to levy taxes?
7. For what purposes and upon what conditions may directors borrow money?
8. What school officers by law hold the title to school-houses and school sites?
9. Give the most important of the duties of the county superintendent of schools; three of the township treasurer.
10. Name the various sources of the revenue provided by law for the support of the public schools of the State.

BOTANY.

1. Define an embryo, and state the functions of each of its parts.
2. What is a stolon? A sucker? An herb? Illustrate.

3. Name the parts of an exogenous stem, from centre to circumference.
4. State four ways of telling an endogenous plant.
5. Distinguish between the natural and artificial systems in the classification of plants.
6. When does a plantlet become a plant and an ovule a seed?
7. Through what parts of an exogenous stem does the sap move in its upward course? In its downward course? What is the character of the sap in each case?
8. Explain the following terms: "Calyx inferior," "central placenta," "stigma sessile," "stamens epipetalous."
9. Give botanical names for five orders of plants and name two species for each order.
10. State the leading characteristics of labiatae and compositae.

CHEMISTRY.

1. Define molecule, element, acid.
2. Show the symbolic uniting of any five compounds, and give the molecular weight of each.
3. In what way would you liberate hydrogen? Show the chemical equation and the reaction.
4. How produce the musical flame? Explain.
5. What is soda water? Explain its preparation.
6. Of what is the air composed? How show its analysis? How much of each gas in 100 parts?
7. Explain the formation of iron rust, carbonic acid, chalk.
8. What compounds are most unstable? Give three illustrations.
9. Show the symbolic writing for water. State the relative amount of each gas by weight and by volume. Say what you can of the value of water to work in chemistry.
10. In the burning of a candle state what processes belong to philosophy and what to chemistry. What products are formed?

PHYSIOLOGY.

1. Describe the hip joint.
2. Describe the circulation of the blood in the liver.
3. Explain the phenomena of suffocation.
4. What are the functions of the lymphatic vessels and glands?
5. Describe the course of a sound wave through the ear, mentioning the structures affected by it.
6. Describe the mucous membrane of the stomach.
7. Explain the digestion and final use of starchy food.
8. What substances are normally excreted by the skin? By the lungs?
9. Define "reflex action," "secretion." Give examples of each.
10. Mention some of the dangers due to organic impurities in drinking water.

ZOOLOGY.

1. Describe the different forms of the nervous systems of animals.
2. Describe briefly the principal modifications of the anterior extremities of vertebrates.
3. Describe the principal forms of locomotor apparatus among mollusks.
4. Give the general and the minute anatomy of any fish.
5. Write an outline of the systematic arrangement of the classes and orders of vertebrates.
6. Write what you can of the classification of any shark and of any star fish, defining two of the groups to which each is assigned.
7. What are the leading differences and resemblances between a crawfish and a grasshopper?

8. Briefly describe any protozoan.
9. Define "homology," "parthenogenesis," "natural selection." What constitutes the scientific name of an animal? By whom is it generally given?
10. Give an outline of the development of any animal.

ASTRONOMY.

1. What is astronomical latitude? The ecliptic? An equinox? A node? Azimuth?
2. At London, $51\frac{1}{2}^{\circ}$ N. lat., how many degrees below the northern horizon is the sun at midnight on June 21? Explain by a figure.
3. In how many days does the sun make one revolution on its axis? How is this determined?
4. How many years would an express train, travelling without cessation at the rate of 30 miles an hour, require to pass from the earth to the sun? Show work.
5. Which is the largest planet? Which has the most moons? Which travels most rapidly? Which is the most distant from the earth? Which approaches nearest to the earth?
6. Do we ever see Venus at midnight? Explain fully.
7. What is meant by the "precession of the equinoxes"? What are some of the most important effects of this movement?
8. What is a "leap year"? How often does leap year occur? State exactly.
9. Describe as fully as you can the constellation Orion.
10. State as many facts as you can about comets.

NATURAL PHILOSOPHY.

1. Define natural philosophy, momentum, elasticity, gravitation. Give the atomic theory.
2. Give the laws of gravity.
 - A, wt. $7\frac{1}{2}$ lbs., is 8 ft. from C.
 - B, wt. $3\frac{1}{2}$ lbs., is $4\frac{1}{2}$ ft. from C.
 A's attraction for C is what part of B's? Show work.
3. Why is it impossible to invent a "perpetual motion" machine? What is the depth to which a suction pump will work? Why?
4. Explain the construction and use of the barometer.
5. How great a pressure is produced by a Hunter's screw, the power being 50 lbs., the circumference of the circle in which the power moves being 75 inches, the threads of the larger screw being $\frac{1}{4}$ an inch apart and of the smaller screw $\frac{1}{8}$ of an inch apart, $33\frac{1}{3}$ per cent. being deducted for friction? Show work.
6. Explain the use of salt in freezing ice cream.
7. Describe the two kinds of steam engines.
8. Describe the spectroscope.
9. Give the laws of vibrations of cords.
10. Explain an ordinary telegraphic instrument.

QUESTIONS USED AT THE KANSAS STATE TEACHERS' EXAMINATION, 1880.

ORTHOEPEY AND ORTHOGRAPHY, INCLUDING THE ANALYSIS, DERIVATION, AND STRUCTURE OF WORDS.

(Sixty minutes.)

1. (a) Define orthoepy. (b) What is an elementary sound? (c) Define vocal, sub-vocal, and aspirate sounds.
2. Make a table containing the representatives of the vowel sounds of our language as given by Webster, and parse orthographically the following words: straight, compromise, exaggerate.

3. Give the orthographic rule applicable in the formation of each of the following words: inferring, salable, peaceable.

4. Define simple, compound, derivative, and primitive words, and give an example of each.

5. Outline your methods of teaching orthography (a) to primary classes; (b) to intermediate classes; (c) to advanced classes.

[NOTE.—Each of the above questions will be estimated as 10 per cent. The remaining 50 per cent. will be graded from the manuscripts submitted.]

READING.

(Sixty minutes.)

1. An exercise in reproduction, after making a careful examination of a short selection.

2. Define absolute and antithetic emphasis, and give examples of each.

3. Construct a simple commencing series, and mark that member which should have the falling inflection.

4. Give your method of conducting a recitation in the Second Reader, including summoning the class, position, holding books, reading, correction of errors, testing the pupil's comprehension of the text, and assignment of the next lesson.

5. Give the ends to be secured in teaching reading to advanced classes, and state what you require in the preparation of the lessons of such classes.

[NOTE.—In addition to the above, for written examination, there will be an oral exercise, which will be considered of equal value in grading.]

SELECTION FOR READING AND REPRODUCTION.

"Rome, in its origin, was a mere municipality, a corporation. In Italy, around Rome, we find nothing but cities—no country places, no villages. The country was cultivated, but not peopled. The proprietors dwelt in cities. If we follow the history of Rome we find that she founded or conquered a host of cities. It was with cities she fought, it was with cities she treated, into cities she sent colonies. In Gaul and Spain we meet with nothing but cities; the country around is marsh and forest. In the monuments left us of ancient Rome, we find great roads extending from city to city; but the thousands of little by-paths now intersecting every part of the country were unknown. Neither do we find traces of the immense number of churches, castles, country seats, and villages which were spread all over the country during the middle ages. The only bequests of Rome consist of vast monuments impressed with municipal character, destined for a numerous population crowded into a single spot. A municipal corporation like Rome might be able to conquer the world; but it was a much more difficult task to mould it into one compact body."—*Guizot's History of Civilization in Europe.*

ENGLISH GRAMMAR AND COMPOSITION.

(One hundred and fifty minutes.)

1. Make a list of ten words derived from the root *press*, and incorporate each in a sentence.

2. Define "adverbial elements," and write a sentence containing one of the first, one of the second, and one of the third class.

3. Give the principal parts and the meaning of the verbs *sit* and *set*, *lie* and *lay*, and state the more common errors in the use of each. Give examples to illustrate the correct use of these words.

4. Are both of the expressions "If I was" and "If I were" correct? If so, how do they differ in sense, and when should each be used?

5. Incorporate each of the active infinitives and participles of the verb *to recite* in a sentence. How do you parse infinitives and participles?

6. In personified objects, when is the masculine gender preferred? When the feminine?

7. Write a letter to the State board of education, making a formal application for

a State certificate, and giving such information as you think will be to your advantage.

8. Copy the following, making use of the proper capital letters and punctuation marks:

Alone alone and every step the mist thickens around me on these mountain tracks to lose ones way they say is sometimes death what ho halloo no tongue replies to me I dare not stop the day though not half run is not less sure to end his course and night will soon come wrapped in most appalling fear i dare not stop nor dare i yet proceed begirt with hidden danger if i take this hand it carries me still deeper into the wild and savage solitudes id shun where once to faint with hunger is to die if this it leads me to the precipice whose brink with fatal horror rivets him that treads upon till drunk with fear he reels into the gaping void and headlong down plunges to still more hideous death cursed slaves to let me wander from them ho halloo my voice sounds weaker to mine ear ive not the strength to call i had and through my limbs cold tremor runs and sickening faintness seizes on my heart o heaven have mercy on me.

INDUSTRIAL DRAWING.

(*Sixty minutes.*)

Draw with hard pencil upon firm paper and with free hand, without measurement, aiming at symmetrical arrangement—

1. A square with an inscribed circle whose radius is one inch.
2. A rhombus within a rectangle two by three inches.
3. A leaf upon a tablet, corresponding in size to other figures.
4. A five-cornered star within a hexagon.

GEOGRAPHY.

(*One hundred and twenty minutes.*)

1. Describe five of the largest rivers on the globe.
2. Bound the German Empire, and locate the capital and four other large cities.
3. Give the physical features of North America in the following sections: (a) North of the line of the Great Lakes; (b) east of the Mississippi and south of the Great Lakes; (c) west of the Mississippi and north of the Rio Grande; (d) south of the Rio Grande.
4. Give the principal mining regions of North America in which are found either coal, iron, lead, oil, silver, or gold.
5. What industries predominate (a) in New England? (b) in the Gulf States? (c) in the Mississippi Valley? (d) on the Pacific Slope?

PHYSIOLOGY.

(*Ninety minutes.*)

1. Give composition of the bones; the muscles.
2. Draw a section of the skin; name and describe the parts and give the functions of each.
3. Name the organs essential to the production of speech. Give the structure and functions of the larynx and its accompanying vocal organs.
4. Why and how does fear affect the action of the heart? Anger?
5. How and where is the heat of the body generated? How regulated? Give all the poisons you can, and their antidotes.

ENTOMOLOGY.

(*Sixty minutes.*)

1. What is an insect? Briefly define each order.
2. Describe the several stages in each of the two principal forms of metamorphosis.
3. Give the habits of two species of insects injuring crops in Kansas and of two species injuring growing fruit trees or fruit.
4. Describe fully the habits of some insect parasitic upon an injurious species.
5. Of what use to plants are insects? Give examples.

GEOLOGY.

(Sixty minutes.)

1. Name and describe the principal minerals of interest in agriculture.
2. Locate the prominent coal formations of Kansas, and describe the coal of each.
3. Give in vertical section the rock formations of Kansas.
4. Give the classification of soils, and account for their formation.
5. Give the physical characteristics of soils affecting fertility.

ARITHMETIC.

(One hundred and eighty minutes.)

1. Write sixty-one million and sixty-one millionths, giving the principles of notation by which you know the work to be correct.
2. Find the greatest common divisor of 272, 344, and 48, giving reasons for the process.
3. Illustrate by examples addition and subtraction of fractions, explaining the necessity of reduction to a common denominator.
4. Analyze the process of dividing one fraction by another, so as to prove the usual method correct.
5. Illustrate and explain the rules for placing the decimal point in multiplication and division.
6. How many cans, each holding one gallon and a pint, can be filled from five barrels of oil, allowing one per cent. for waste?
7. Give the essential elements of percentage, and show its numerous applications.
8. Illustrate the difference between simple, annual, and compound interest upon a note of your own making.
9. A note of \$1,000 is discounted at the bank for sixty days, and the proceeds are invested in stock at 90 per cent., paying semiannual dividends of 8 per cent. What are the profits?
10. What time is it when the hands of the clock are together between 4 and 5 P. M.?

BOOK-KEEPING.

(One hundred and twenty minutes.)

1. Define (a) book-keeping, (b) single entry, (c) double entry, (d) day book, (e) ledger.
2. Write forms for (a) negotiable note of hand, (b) receipt for goods delivered by agent, (c) receipt for cash payment.
3. Form a day book account of Dr. and Cr. with John Doe, and describe the process of carrying this account through the usual forms of book-keeping.
4. In what particulars does "bank paper" differ from a "note of hand"?
5. Describe a "balance sheet."

ALGEBRA.

(One hundred and twenty minutes.)

1. Define coefficient, exponent, radical, equation.
2. Find the value of unknown quantities in the examples:

$$(a) \quad \frac{5x+7}{3(25x^2-49)} + \frac{2}{3} = \frac{47}{69}$$

$$(b) \quad \frac{(a^2-b^2)x}{a+2ab+b^2} = c$$

$$(c) \quad \frac{5x}{8} - \frac{6y}{5} = 2x - 40, \text{ and } \frac{3x}{4} + \frac{5y}{3} = 40 - \frac{y}{5}$$

3. Give the methods and rules for elimination.
4. Clear from radicals, the following examples:

$$(a) \sqrt{a} + \sqrt{b} \quad (b) \sqrt[3]{64 a^6 c^8} \quad (c) \sqrt{54 a^2 + 9 a^2 c}$$

NOTE.—The following are added for a five years' certificate:

5. The area of a rectangular plat is 560 square rods and the length exceeds the breadth by 8 rods. Find length and breadth.
6. The sum of the two digits expressing a certain number is 10. If the product of these digits be increased by 40, the result will be represented by the digits in reverse order.

UNITED STATES HISTORY AND CONSTITUTION.

(Ninety minutes.)

1. Give the place, time, and some important event in the first permanent European settlement of Florida, of Virginia, of New York, of Massachusetts.
2. Describe the last decisive battle between the land forces in the war for independence.
3. What international questions were decided by the war of 1812-1814?
4. What were the principal causes for the civil war of 1861-1865?
5. Name the thirteen original States, and give the proper abbreviations for the remaining States and Territories.
6. How many articles were embraced in the Constitution when first adopted and how many articles have been added as amendments?
7. What provision is made in the Constitution for (a) a legislative department of Government? (b) an executive department of Government? (c) a judicial department of Government?
8. Define the office and duties of the Vice-President of the United States.
9. Under what restrictions are new States admitted into the Union?
10. How far can a State change its constitution after admission?

BOTANY.

(Ninety minutes.)

1. Classify plants according to the "natural system" as far as the *ordus*.
2. Describe the mode of growth in exogens, in endogens.
3. Explain the different arrangements of buds on a stem. What is the mathematical principle? Define aestivation, vernation. Name and illustrate by diagrams the commonest arrangements of leaves in buds.
4. What is a seed? a fruit?
5. Classify, giving data of classification in each step, the "Spring Beauty." Sep. 2 acute, Cor. with Pet., 5 Obov., Sta. 5, Stig. 3 on 1 long Stig., Caps 3 valved 2—5 seeded fleshy, early—flowering 4, from tuber. Describe and classify leaves according to vernation.

NATURAL PHILOSOPHY.

(Ninety minutes.)

1. Name and define six general properties of matter.
2. Give the three laws of falling bodies.
3. Show how atmospheric pressure is measured and describe the cistern barometer.
4. Give the laws of radiant heat, with proofs.
5. Explain the appearance of images in the ordinary plane mirror.
6. Give the properties of a magnet and methods of magnetizing steel.

DIDACTICS.

(Ninety minutes.)

1. Name four important modes of punishment, and explain how they are improper.
2. Describe a recitation in reading by word method.
3. Outline two consecutive lessons in beginning grammar. Children, 14 years of age.
4. Name the order of the development of the faculties of the mind.
5. A teacher should begin to develop the reasoning faculty of children at what age?
6. What general law of development applies to all the faculties?
7. Upon what principle are object lessons based?
8. How develop the attention?
9. How develop the perceptive power?
10. Should a teacher understand mental science? To what extent have you studied it?

GENERAL HISTORY.

(Ninety minutes.)

1. How did the civilization of ancient Greece differ from that of Persia?
2. Give a biographical sketch of Cicero.
3. Who was Constantine and what was the most notable event of his reign?
4. What were the object and result of the last crusade?
5. Give the history of the Great Charter.

GEOMETRY.

(Ninety minutes.)

1. Define the field covered by elementary geometry.
2. Prove that if two angles of a triangle are equal the opposite sides are also equal.
3. Prove that an angle inscribed in a circle is measured by half the arc included between its sides.
4. Prove that if a straight line be drawn in any triangle parallel to one of the sides it will cut the other two sides proportionally.
5. Prove that a circle may be circumscribed about any regular polygon.
6. Prove that every triangular pyramid is a third part of a triangular prism which has the same base and the same altitude.

POLITICAL ECONOMY.

(One hundred and twenty minutes.)

1. Name the essential qualities of wealth.
2. Define value.
3. What elements determine the value of a commodity?
4. What elements determine the price of a commodity?
5. Is money always capital?
6. Explain the variation in the purchasing power of money.
7. Name the essential qualities of money.
8. Name the use of middlemen.
9. Name the advantages of a division of labor.
10. What is meant by inflating the currency?

CHEMISTRY.

(Ninety minutes.)

1. State the difference between chemistry and natural philosophy.
2. Make a list of what you consider the fifteen most essential pieces of apparatus for a student's chemical laboratory. What chemical laboratories have you visited?

3. State what is meant by the atomic weight of an element, and give the atomic weight of silver, potassium, sodium, and iron.
4. Give the tests by which arsenic can be detected with certainty.
5. Describe the "Bessemer process" of preparing steel.

LATIN.

(One hundred and twenty minutes.)

Italia ab Alpibus usque ad fretum Siculum porrigitur inter mare Tuscum et Adriaticum. Multo longior est quam latior. In medio se attolit Appenninus mons, qui, postquam continenti jugo progressus est usque ad Apuliam, in duos quasi ramos dividitur.

1. Give a literal translation of the above.
2. Parse the proper nouns, giving number, person, gender, case, and relation.
3. Construe the finite verbs, and give mode and tense of each.
4. In what particular does the Latin subjunctive differ from the indicative mode?
5. Change to Latin, "The army having been defeated, the general was dismissed in disgrace."
6. Define hexameter verse and mark the feet in the following lines:
 "Cui non dictus Hylas puer et Latonia Delos?"
 "Expleri mentem nequit ardescitque tuando."

1. The first part of the document is a list of names and titles, including the names of the authors and the titles of the works. This list is organized in a table format with two columns: the first column contains the names of the authors, and the second column contains the titles of the works. The names are listed in alphabetical order, and the titles are listed in the order in which they appear in the document.

CIRCULARS OF INFORMATION

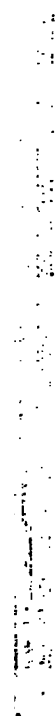
OF THE

BUREAU OF EDUCATION.

No. 2-1883.

**COEDUCATION OF THE SEXES IN THE PUBLIC SCHOOLS
OF THE UNITED STATES.**

**WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1883.**



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1. The first part of the document is a list of names and addresses of the members of the committee.

LETTER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., May 24, 1883.

SIR: The manuscript accompanying this letter is an analysis of recent facts and opinions respecting coeducation of the sexes in three hundred and forty towns and cities of the United States. The material employed has been contributed by the school officers and superintendents charged with the management of public instruction in those places; and the variety of the opinions expressed is a faithful reflection of the differing conditions and circumstances. I believe that the newness of the testimony, its great variety of origin, the careful presentment of its characteristics, and the systematic formulation of its results render this paper of peculiar interest to the teaching profession and the public, and therefore recommend its publication as a circular of information.

Very respectfully, your obedient servant,

JOHN EATON,
Commissioner.

The Hon. SECRETARY OF THE INTERIOR.

Publication approved.

M. L. JOSLYN,
Acting Secretary.
51-52

COEDUCATION OF THE SEXES IN THE PUBLIC SCHOOLS.

Some esteemed correspondents of the United States Bureau of Education in other countries have made inquiries almost at the same time respecting coeducation of the sexes in American schools. One of these inquiries was specially as to the extent to which coeducation is adopted and practised in public school systems and another referred particularly to the prevalence of coeducation in schools for secondary and superior instruction, public and corporate. In order that these and other inquiries might be answered as clearly and concisely as possible, it was thought best to issue a circular of inquiry to the school officers of such cities and towns as were known or supposed to have graded public schools. This inquiry comprehended substantially (1) the name of the city; (2) its school age; (3) enrolment of different scholars in October, 1882, male, female, and total; (4) the number of said scholars in schools for both sexes, male, female, and total; (5) the number of years in which coeducation is practised; (6) the reasons for adopting or preferring the practice in vogue; (7) how long the present practice has been in vogue; and (8) what change, if any, is proposed and the reasons for it.

It is obvious that the object of this inquiry was to obtain fresh and numerous opinions as much as it was to collect statistics. The progress of time, growth in density of population, the displacement of older by younger superintendents and school officers, and change in other circumstances might have produced in a few years much more extensive changes of thought and opinion than might appear in published reports, and more general change of practice than had been noticed or described by any one. To the many gentlemen who kindly replied to these questions, the Office is indebted for its ability to present the material of this paper.

To the foreign friends and students of American education, a word of caution before reading this article is proffered. No careful person will advise any people to adopt laws and to develop its life and customs in a special direction, although another people has benefited by those laws and customs: the moral conditions and tendencies of the communities must be similar in most respects in order to make the result of such a change really beneficial. Therefore much caution should be exercised by communities existing under different conditions in adopting the American custom of educating the sexes together, because co-

education is only a part of our developed life and body of customs, and if separated from the rest of our laws and customs might produce quite different and even injurious results.

A suggestion may not be out of place also to the many foreign critics of our schools and methods, who, accustomed to the laws and customs of other countries, are good enough to prophesy evil and only evil of ours. It might be better for their accuracy if they understood the subject of their criticism before talking about it. They are particularly fond of criticising coeducation, of which at home they can know little or nothing.

The recital of the many customs, habits, and circumstances environing coeducation of the sexes in this country would be tedious; only a few of the most important will receive a simple mention here. These are the freedom from State control of the ethical and religious relations of persons to each other, the preponderance of the male sex in the greater number of our communities, the survival or revival of the old Teutonic reverence for women, and the universal familiarity of the practice of coeducation for many generations.

The "common school" in the United States is and has been a "mixed" school, which boys and girls attend together, and it is the only school that three-fourths of the people ever enter. In rural communities the weeks between the latest harvest and the earliest ploughing time are occupied by the common school, supported partly by a local tax and partly by a share of the State tax or appropriation. The pupils are brothers, sisters, cousins, and neighbors to each other; the kindly influences of the family continue beneficially during school hours; the stronger and older pupils protect and advise those who are younger and weaker; the State does not require that the children shall be taught any special form of religious belief or that they shall wear any uniform or other sign of dependence or obligation. As neither the law nor the structure of society recognizes any gradation of rank or station among the people by the bestowal of hereditary honors, rewards, or titles, all the children of the vicinity attend the same school, and the child of the tailor, blacksmith, or carpenter is free to surpass in study and recitation the child of the richest farmer, the ablest lawyer, or the wisest physician in the neighborhood. Under this simple and wholesome regimen the boys are observed to become somewhat less rude and boisterous than when taught separately, while the girls display more courage and candor than is usual in other circumstances. The young people attend school from the age of five or six till they are sixteen or older, when the active duties of life generally begin. Thus, simply and naturally, the rural children of this country grow up into men and women who understand one another better and respect one another more than the people of other lands appear to do. The sexual and social morality of the rural districts and small towns of the United States is very high.

Of these interesting and most numerous communities the statistics

presented in this article say nothing. Their schools are everywhere schools for both sexes. In this respect the graded schools of the villages, towns, and smaller cities are like those of the rural districts.

The following statistics are presented from 144 such towns and smaller cities having less than 7,500 inhabitants according to the census of 1880:

Towns practising coeducation of the sexes, 1882.

Town.	State.	Population, 1880.	School age.	Enrolled in public schools October, 1882.		
				Male.	Female.	Total.
Birmingham	Alabama	3,086	7-21	201	175	376
Central City	Colorado	2,626	6-21	226	201	427
Golden	do	2,730	6-21	233	279	512
Altamont	Illinois	3,065	6-21	51	89	120
Amboy	do	2,448	6-21	251	336	587
Belvidere	do	2,951	6-21	176	189	356
Edwardsville	do	2,887	6-21	324	293	617
Geneseo	do	3,518	6-21	302	416	718
Kilmundy	do	1,096	6-21	100	120	220
Mattoon	do	5,737	6-21	213	260	473
Morrison	do	1,981	6-21	236	239	475
Paris	do	4,373	6-21	460	476	936
Peru	do	4,632	6-21	409	445	854
Princeton	do	3,439	6-21	379	470	849
Rochelle	do	1,893	6-21	212	231	443
Sandwich	do	2,352	6-21	228	268	496
Sparta	do	1,754	6-21	268	325	593
Urbana	do	2,942	6-21	306	350	656
Attica	Indiana	2,150	6-21	240	260	500
Cannelton	do	1,834	6-21	180	181	361
Crawfordsville	do	5,251	6-21	517	512	1,029
Franklin	do	3,116	6-21	300	320	620
Greencastle	do	3,644	6-21	373	411	784
Mishawaka	do	2,640	6-21	220	280	500
Orleans	do	812	6-21	129	113	233
Princeton	do	2,566	6-21	360	403	763
Rising Sun	do	1,806	6-21	210	189	399
Rushville	do	2,515	6-21	247	268	515
Seymour	do	4,250	6-21	407	443	850
Spencer	do	1,655	6-21	183	214	397
Union City	do	3,705	6-21	348	395	743
Washington	do	4,323	6-21	360	398	758
Bloomfield	Iowa	1,531	5-21	297	230	527
Durant	do	475	5-21	59	62	121
Fort Madison	do	4,679	5-21	186	280	466
Independence	do	3,128	5-18	278	306	584
Knoxville	do	2,577	5-21	341	358	699
Lemars	do	1,895	5-21	203	251	454
McGregor	do	1,602	5-21	140	199	339
Marengo	do	1,738	5-21	213	267	480
Marion	do	1,939	5-21	276	263	539
Marshalltown	do	6,240	5-21	689	745	1,434
Mason City	do	2,510	5-21	300	400	700
Newton	do	2,607	5-21	256	268	524

Towns practising coeducation of the sexes, 1882—Continued.

Town.	State.	Population, 1880.	School age.	Enrolled in public schools October, 1882.		
				Male.	Female.	Total.
Oskaloosa.....	Iowa.....	4,598	5-21	526	668	1,194
Shenandoah.....	do.....	1,387	5-21	201	308	509
Abilene.....	Kansas.....	2,360	5-21	254	292	546
Beloit.....	do.....	1,835	6-21	184	206	390
Holton.....	do.....	1,500	5-21	209	218	427
Humboldt.....	do.....	1,542	5-21	159	195	354
Independence.....	do.....	2,915	6-21	387	440	827
Olathe.....	do.....	2,285	6-21	212	228	440
Ottawa.....	do.....	4,032	5-21	453	507	960
Salina.....	do.....	3,111	5-21	332	369	701
Sedan.....	do.....	665	5-21	140	173	313
Wichita.....	do.....	4,911	5-21	399	440	839
Algonac.....	Michigan.....	712	5-20	207	134	341
Allegan.....	do.....	2,305	5-20	235	263	498
Brighton.....	do.....	803	5-20	102	107	209
Douglas.....	do.....	522	5-20	73	95	168
East Tawas.....	do.....	1,086	6-20	106	133	239
Eaton Rapids.....	do.....	1,785	5-20	165	256	421
Flushing.....	do.....	690	5-20	131	130	261
Goodrich.....	do.....	235	5-20	56	53	109
Grand Haven.....	do.....	4,862	5-20	546	534	1,080
Hanover.....	do.....	300	5-20	97	100	197
Houghton.....	do.....	1,700	5-20	350	322	672
Lapeer.....	do.....	2,911	5-20	291	316	607
Ludington.....	do.....	4,190	5-20	416	410	826
Mason.....	do.....	1,809	5-20	168	209	377
Middleville.....	do.....	712	5-20	104	100	204
Negaunee.....	do.....	3,931	5-20	219	213	432
Paw Paw.....	do.....	1,482	5-20	200	112	312
Pontiac.....	do.....	4,509	5-20	390	493	883
Traverse City.....	do.....	1,897	5-20	199	261	460
Wayne.....	do.....	919	5-20	139	152	291
West Bay City.....	do.....	6,397	5-20	630	643	1,273
Wyandotte.....	do.....	3,631	5-20	381	320	701
Ypsilanti.....	do.....	4,984	5-20	445	456	901
Appleton.....	Minnesota.....	400	5-21	35	56	91
Blue Earth City.....	do.....	1,066	6-21	125	145	270
Cannon Falls.....	do.....	942	5-21	83	116	199
Duluth.....	do.....	2,645	5-21	422	456	878
Lake City.....	do.....	2,596	5-21	247	246	493
Montevideo.....	do.....	862	5-21	101	149	250
Northfield.....	do.....	2,296	5-21	212	204	416
Rochester.....	do.....	5,103	5-21	346	424	770
Waseca.....	do.....	1,708	5-21	200	225	425
Boonville.....	Missouri.....	3,854	6-21	250	269	519
Glasgow.....	do.....	1,841	6-21	230	225	455
Louisiana.....	do.....	4,325	6-20	260	263	523
Marshall.....	do.....	2,701	6-21	360	370	730
Springfield.....	do.....	6,522	6-20	730	840	1,570
Beatrice.....	Nebraska.....	2,447	5-21	246	272	518
Fremont.....	do.....	3,013	5-21	441	479	920

COEDUCATION IN THE PUBLIC SCHOOLS.

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Towns practising coeducation of the sexes, 1882—Continued.

Town.	State.	Population, 1880.	School age.	Enrolled in public schools October, 1882.		
				Male.	Female.	Total.
aska City	Nebraska	4, 183	5-21	310	420	730
ton	New Hampshire ..	1, 080	5-14	70	100	170
stown	New Jersey	5, 418	5-18	338	382	720
psburg	do	7, 181	5-18	766	706	1, 472
ay	do	6, 455	5-15			1, 226
age	do	5, 056	5-18	300	399	699
age	New York	1, 912	5-21	200	235	435
Island	do	4, 160	5-21	341	365	706
Falls	do	6, 910	5-21	400	450	850
ich	do	5, 756	5-21	326	419	805
ling	do	6, 578	5-21	425	470	895
hall	do	4, 270	5-21	278	410	688
sboro'	North Carolina ..	2, 105	6-21	120	125	245
sbula	Ohio	4, 445	6-21	356	323	679
ville	do	6, 046	6-21	502	627	1, 129
ce	do	5, 907	6-18	516	524	1, 040
olla	do	4, 400	6-21	543	391	934
ster	do	6, 803	6-21	543	525	1, 068
ta	do	5, 444	6-21	508	649	1, 157
t Vernon	do	5, 249	6-21	416	434	850
.....	do	6, 031	6-21	491	551	1, 042
ington C. H.	do	3, 798	6-21	346	369	715
ter	do	5, 840	6-21	541	563	1, 104
.....	do	7, 026	6-21	548	533	1, 081
East	Pennsylvania	1, 396	6-21	127	150	277
ty	do	7, 315	6-21	800	700	1, 500
nda	do	3, 814	6-21	256	267	523
ontown	do	1, 481	6-21	195	203	398
ngton	Rhode Island	1, 359	5-	77	68	145
r	do	1, 310	5-15	93	95	188
ston	do	5, 765	5-15	480	419	899
Providence	do	1, 467	5-16	113	105	218
field	do	*1, 800	5-15	164	173	337
erly	do	6, 104	4-	301	308	609
ington	Tennessee	646	6-21	125	175	300
City	do	1, 879	6-21	198	210	408
am	Texas	4, 101	6-16	287	327	614
.....	do	*1, 500	8-14	93	120	213
ana	do	3, 373	7-16	270	280	550
la	do	1, 175	6-18	100	110	210
sota	do	1, 611	5-20	210	238	448
tine	do	2, 997	8-14	126	118	244
ton	Virginia	6, 664	5-21	472	421	893
rsburg	West Virginia ..	6, 582	6-21	706	801	1, 507
.....	Wisconsin	731	4-20	132	128	260
River Falls	do	1, 427	4-20	120	145	265
on	do	665	4-20	212	280	492
monee	do	2, 258	4-20	354	414	768
Holstein	do	2, 059	4-20	152	124	276

* Estimated.

In most of the larger towns and cities coeducation of the sexes is the rule, separation the exception. Recent replies have been received from 196 such places, 177 of which coeducate and 19 separate the sexes for at least a part of the school course. The statistics respecting the coeducating cities and towns are now presented:

Cities practicing coeducation of the sexes, 1882.

Town.	State.	Population, 1880.	School age.	Enrolled in public schools, October, 1882.		
				Male.	Female.	Total.
Little Rock	Arkansas	13,185	6-21	957	1,312	2,269
Los Angeles	California	11,180	6-21	1,013	1,023	2,036
Oakland	do	34,556	6-21	3,050	3,117	6,167
Sacramento	do	21,420	6-21	1,723	1,893	3,616
San Francisco	do	233,953	6-17	15,615	13,936	29,551
Stockton	do	10,287	6-17	880	973	1,853
Denver	Colorado	35,629	6-21	1,900	2,126	4,026
Bridgeport	Connecticut	29,148	5-16	2,349	2,396	4,745
Danbury	do	11,669	5-21	600	608	1,208
Greenwich	do	7,892	4-16	725	712	1,437
Meriden	do	18,340	5-16	1,450	1,530	2,980
New Britain	do	13,978	4-16	747	812	1,559
Norwich	do	21,141	4-16	1,066	1,018	2,084
Waterbury	do	20,269	4-16			4,390
Key West	Florida	9,890	6-21	455	506	961
Columbus	Georgia	10,123	7-16	363	443	806
Alton	Illinois	8,975	6-21	525	666	1,191
Aurora	do	11,873	6-21	1,073	1,116	2,189
Chicago	do	503,305	6-21	30,318	31,279	61,597
Danville	do	7,735	6-21	892	911	1,803
Decatur	do	9,548	6-21	949	913	1,862
Elgin	do	8,789	6-21	739	696	1,435
Freeport	do	8,516	5-21	675	618	1,293
Galesburg	do	11,446	6-21	819	861	1,680
Joliet	do	11,659	6-21	1,129	1,154	2,283
Ottawa	do	7,834	6-21	746	737	1,483
Quincy	do	27,275	6-21	1,338	1,509	2,847
Rockford	do	13,136	6-21	1,008	1,157	2,165
Rock Island	do	11,661	6-21	901	941	1,842
Springfield	do	19,746	6-21	1,369	1,279	2,648
Fort Wayne	Indiana	26,880	6-21	1,337	1,540	2,877
Indianapolis	do	75,074	6-21	5,086	6,369	11,455
La Fayette	do	14,860	6-21	1,301	1,340	2,641
Logansport	do	11,198	6-21	796	882	1,678
New Albany	do	16,423	6-21	1,315	1,331	2,646
Richmond	do	12,743	6-21	958	1,058	2,016
South Bend	do	13,279	6-21	913	940	1,853
Terre Haute	do	26,040	6-21	1,000	2,000	3,000
Vincennes	do	7,680	6-21	395	390	785
Burlington	Iowa	19,450	5-21	1,400	1,000	2,400
Clinton	do	9,052	5-21	701	800	1,501
Council Bluffs	do	18,050	5-21	800	1,000	1,800

Estimated.

COEDUCATION IN THE PUBLIC SCHOOLS.

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Cities practising coeducation of the sexes, 1882—Continued.

Town.	State.	Population, 1880.	School age.	Enrolled in public schools October, 1882.		
				Male.	Female.	Total.
Davenport.....	Iowa.....	21,834	5-21	1,972	2,160	4,132
Des Moines.....	do.....	22,408	5-21	1,186	1,298	2,484
Dubuque.....	do.....	22,254	5-21	1,598	1,494	3,092
Keokuk.....	do.....	12,117	5-21	970	1,146	2,116
Ottumwa.....	do.....	9,004	5-21	694	807	1,501
Atchison.....	Kansas.....	15,105	5-21	1,030	1,281	2,311
Lawrence.....	do.....	8,511	5-21	789	874	1,663
Leavenworth.....	do.....	16,550	5-21	1,572	1,677	3,249
Topeka.....	do.....	15,451	7-21	1,471	1,673	3,144
Lexington.....	Kentucky.....	16,656	6-20	966	909	1,875
Newport.....	do.....	20,433	6-20	1,125	1,212	2,337
Auburn.....	Maine.....	9,556	4-21			1,600
Lewiston.....	do.....	19,083	4-21			2,256
Portland.....	do.....	33,810	5-21	2,900	2,336	5,236
Rockland.....	do.....	7,599	4-21			1,450
Brookline.....	Massachusetts.....	8,053	5-16	659	687	1,346
Cambridge.....	do.....	52,740	5-15	4,228	4,389	8,617
Chelsea.....	do.....	21,782	5-15			3,653
Chicopee.....	do.....	11,325	5-15	528	566	1,094
Fitchburg.....	do.....	12,405	5-15			2,200
Gloucester.....	do.....	19,329	5-15	2,007	2,032	4,039
Lowell.....	do.....	59,485	5-15	4,250	3,750	8,000
Lynn.....	do.....	38,284	5-15	2,876	2,815	5,691
Malden.....	do.....	12,017	5-15	878	902	1,780
Marlborough.....	do.....	10,126	5-15	1,032	980	2,012
Milford.....	do.....	9,310	5-21	814	655	1,469
Newton.....	do.....	16,995	5-15	1,657	1,783	3,440
Pittsfield.....	do.....	13,367	5-15	1,261	1,201	2,462
Somerville.....	do.....	24,985	5-15	2,457	1,900	4,387
Springfield.....	do.....	33,340	5-15	2,851	2,369	5,220
Taunton.....	do.....	21,213	5-15	2,153	1,932	4,085
Weymouth.....	do.....	10,571	5-15	940	935	1,875
Woburn.....	do.....	10,938	5-18	1,100	1,200	2,300
Worcester.....	do.....	58,295	5-18	5,200	4,400	9,600
Adrian.....	Michigan.....	7,849	5-20	621	675	1,296
Ann Arbor.....	do.....	8,061	5-20	904	749	1,653
Bay City.....	do.....	20,693	5-20	1,240	1,343	2,583
Detroit.....	do.....	116,342	5-20	6,443	6,917	13,360
East Saginaw.....	do.....	19,016	5-20	1,403	1,521	2,924
Flint.....	do.....	8,410	5-20	688	767	1,455
Grand Rapids.....	do.....	32,015	5-20	2,492	2,579	5,071
Kalamazoo.....	do.....	*11,500	5-20	952	1,077	2,029
Muskegon.....	do.....	11,262	5-20	910	1,018	1,928
Saginaw.....	do.....	10,525	5-20	937	925	1,862
Minneapolis.....	Minnesota.....	46,887	6-21	3,352	3,440	6,792
St. Paul.....	do.....	41,498	6-21	2,878	2,616	5,494
Stillwater.....	do.....	9,054	6-21	625	605	1,230
Winona.....	do.....	10,208	5-21	662	678	1,340
St. Joseph.....	Missouri.....	32,461	6-20	1,884	2,037	3,921
St. Louis.....	do.....	350,522	6-20	22,966	24,755	47,721
Sedalia.....	do.....	9,561	6-20	985	1,154	2,139

* Estimated.

Towns practising coeducation of the sexes, 1882—Continued.

Town.	State.	Population, 1880.	School age.	Enrolled in public schools October, 1882.		
				Male.	Female.	Total.
Oskaloosa.....	Iowa.....	4,598	5-21	526	668	1,194
Shenandoah.....	do.....	1,387	5-21	201	208	409
Abilene.....	Kansas.....	2,360	5-21	254	292	546
Beloit.....	do.....	1,835	6-21	184	206	390
Holton.....	do.....	1,500	5-21	209	218	427
Humboldt.....	do.....	1,542	5-21	159	195	354
Independence.....	do.....	2,915	6-21	387	403	790
Olathe.....	do.....	2,285	6-21	212	228	440
Ottawa.....	do.....	4,032	5-21	453	507	960
Salina.....	do.....	3,111	5-21	332	369	701
Sedan.....	do.....	665	5-21	140	173	313
Wichita.....	do.....	4,911	5-21	399	440	839
Algonac.....	Michigan.....	712	5-20	207	134	341
Allegan.....	do.....	2,305	5-20	235	263	498
Brighton.....	do.....	803	5-20	102	107	209
Douglas.....	do.....	522	5-20	73	95	168
East Tawas.....	do.....	1,086	5-20	106	133	239
Eaton Rapids.....	do.....	1,785	5-20	165	256	421
Flushing.....	do.....	690	5-20	131	120	251
Goodrich.....	do.....	235	5-20	56	53	109
Grand Haven.....	do.....	4,862	5-20	546	534	1,080
Hanover.....	do.....	300	5-20	97	100	197
Houghton.....	do.....	1,700	5-20	359	322	681
Lapeer.....	do.....	2,911	5-20	291	316	607
Ludington.....	do.....	4,190	5-20	416	410	826
Mason.....	do.....	1,809	5-20	168	209	377
Middleville.....	do.....	712	5-20	104	109	213
Negaunee.....	do.....	3,931	5-20	219	213	432
Paw Paw.....	do.....	1,482	5-20	200	112	312
Pontiac.....	do.....	4,509	5-20	390	493	883
Traverse City.....	do.....	1,897	5-20	199	261	460
Wayne.....	do.....	919	5-20	139	152	291
West Bay City.....	do.....	6,397	5-20	630	643	1,273
Wyandotte.....	do.....	3,631	5-20	381	326	707
Ypsilanti.....	do.....	4,984	5-20	445	456	901
Appleton.....	Minnesota.....	400	5-21	35	56	91
Blue Earth City.....	do.....	1,066	6-21	125	142	267
Cannon Falls.....	do.....	942	5-21	83	116	199
Duluth.....	do.....	2,645	5-21	422	456	878
Lake City.....	do.....	2,596	5-21	247	246	493
Montevideo.....	do.....	862	5-21	101	149	250
Northfield.....	do.....	2,296	5-21	212	286	498
Rochester.....	do.....	5,103	5-21	346	424	770
Waseca.....	do.....	1,708	5-21	200	225	425
Boonville.....	Missouri.....	3,854	6-21	250	309	559
Glasgow.....	do.....	1,841	6-21	230	225	455
Louisiana.....	do.....	4,325	6-20	260	363	623
Marshall.....	do.....	2,701	6-21	360	370	730
Springfield.....	do.....	6,522	6-20	730	846	1,576
Beatrice.....	Nebraska.....	2,447	5-21	246	272	518
Fremont.....	do.....	3,013	5-21	441	479	920

COEDUCATION IN THE PUBLIC SCHOOLS.

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Towns practising coeducation of the sexes, 1882—Continued.

Town.	State.	Population, 1880.	School age.	Enrolled in public schools October, 1882.		
				Male.	Female.	Total.
Nebraska City	Nebraska	4, 183	5-21	310	420	730
Kingston	New Hampshire ..	1, 080	5-14	70	100	170
Morristown	New Jersey	5, 418	5-18	338	382	720
Phillipsburg	do	7, 181	5-18	766	706	1, 472
Rahway	do	6, 455	5-15			1, 226
Salem	do	5, 056	5-18	300	399	699
Carthage	New York	1, 912	5-21	200	235	435
Green Island	do	4, 160	5-21	341	365	706
Little Falls	do	6, 910	5-21	400	450	850
Norwich	do	5, 756	5-21	386	419	805
Sing Sing	do	6, 578	5-21	425	470	895
Whitehall	do	4, 270	5-21	278	410	688
Greensboro'	North Carolina ..	2, 105	6-21	120	125	245
Ashtabula	Ohio	4, 445	6-21	356	323	679
Circleville	do	6, 046	6-21	502	627	1, 129
Defiance	do	5, 907	6-18	516	524	1, 040
Gallipolis	do	4, 400	6-21	543	391	934
Lancaster	do	6, 803	6-21	543	525	1, 068
Marietta	do	5, 444	6-21	508	649	1, 157
Mount Vernon	do	5, 249	6-21	416	434	850
Piqua	do	6, 031	6-21	491	551	1, 042
Washington C. H.	do	3, 798	6-21	346	369	715
Wooster	do	5, 840	6-21	541	563	1, 104
Xenia	do	7, 026	6-21	548	533	1, 081
North East	Pennsylvania	1, 396	6-21	127	150	277
Oil City	do	7, 315	6-21	800	700	1, 500
Towanda	do	3, 814	6-21	256	267	523
Watsontown	do	1, 481	6-21	195	203	398
Barrington	Rhode Island	1, 359	5-	77	68	145
Exeter	do	1, 310	5-15	93	95	188
Johnston	do	5, 765	5-15	480	419	899
North Providence	do	1, 467	5-16	113	105	218
Smithfield	do	*1, 800	5-15	164	173	337
Westerly	do	6, 104	4-	301	308	609
Huntington	Tennessee	646	6-21	125	175	300
Union City	do	1, 879	6-21	198	210	408
Brenham	Texas	4, 101	6-16	287	327	614
Bryan	do	*1, 500	8-14	93	120	213
Corsicana	do	3, 373	7-16	270	280	550
Mineola	do	1, 175	6-18	100	110	210
Navasota	do	1, 611	5-20	210	238	448
Palestine	do	2, 997	8-14	126	118	244
Staunton	Virginia	6, 664	5-21	472	421	893
Parkersburg	West Virginia ..	6, 582	6-21	706	801	1, 507
Alma	Wisconsin	731	4-20	132	128	260
Black River Falls	do	1, 427	4-20	120	145	265
Hudson	do	665	4-20	212	280	492
Menomonee	do	2, 258	4-20	354	414	768
New Holstein	do	2, 050	4-20	152	124	276

* Estimated.

In most of the larger towns and cities coeducation of the sexes is the rule, separation the exception. Recent replies have been received from 196 such places, 177 of which coeducate and 19 separate the sexes for at least a part of the school course. The statistics respecting the coeducating cities and towns are now presented:

Cities practising coeducation of the sexes, 1882.

Town.	State.	Population, 1880.	School age.	Enrolled in public schools October, 1882.		
				Male.	Female.	Total.
Little Rock	Arkansas	13, 185	6-21	957	1, 312	2, 269
Los Angeles	California	11, 180	6-21	1, 013	1, 023	2, 036
Oakland	.. do	34, 556	6-21	3, 050	3, 117	6, 167
Sacramento	.. do	21, 420	6-21	1, 723	1, 893	3, 616
San Francisco	.. do	233, 953	6-17	15, 615	13, 936	29, 551
Stockton	.. do	10, 287	6-17	880	973	1, 853
Denver	Colorado	35, 629	6-21	1, 960	2, 128	4, 088
Bridgeport	Connecticut	29, 148	5-16	2, 349	2, 266	4, 615
Danbury	.. do	11, 669	5-21	600	608	1, 208
Greenwich	.. do	7, 892	4-16	725	712	1, 437
Meriden	.. do	18, 340	5-16	1, 450	1, 530	2, 980
New Britain	.. do	13, 978	4-16	747	812	1, 559
Norwich	.. do	21, 141	4-16	*1, 066	*1, 018	*2, 084
Waterbury	.. do	20, 269	4-16			4, 200
Key West	Florida	9, 890	6-21	455	506	963
Columbus	Georgia	10, 123	7-16	363	443	806
Alton	Illinois	8, 975	6-21	525	666	1, 191
Aurora	.. do	11, 873	6-21	1, 073	1, 116	2, 189
Chicago	.. do	503, 305	6-21	30, 318	31, 279	61, 597
Danville	.. do	7, 735	6-21	892	911	1, 803
Decatur	.. do	9, 548	6-21	949	913	1, 862
Elgin	.. do	8, 789	6-21	739	696	1, 435
Freeport	.. do	8, 516	5-21	675	618	1, 293
Galesburg	.. do	11, 446	6-21	819	881	1, 700
Joliet	.. do	11, 659	6-21	1, 129	1, 154	2, 283
Ottawa	.. do	7, 834	6-21	746	737	1, 483
Quincy	.. do	27, 275	6-21	1, 338	1, 509	2, 847
Rockford	.. do	13, 136	6-21	1, 009	1, 157	2, 166
Rock Island	.. do	11, 661	6-21	901	941	1, 842
Springfield	.. do	19, 746	6-21	1, 269	1, 279	2, 548
Fort Wayne	Indiana	26, 880	6-21	1, 337	1, 540	2, 877
Indianapolis	.. do	75, 074	6-21	5, 695	6, 389	12, 084
La Fayette	.. do	14, 860	6-21	1, 301	1, 340	2, 641
Logansport	.. do	11, 198	6-21	790	892	1, 682
New Albany	.. do	16, 423	6-21	1, 315	1, 331	2, 646
Richmond	.. do	12, 743	6-21	958	1, 058	2, 016
South Bend	.. do	13, 279	6-21	913	949	1, 862
Terre Haute	.. do	26, 040	6-21	1, 900	2, 000	3, 900
Vincennes	.. do	7, 680	6-21	395	388	783
Burlington	Iowa	19, 450	5-21	1, 460	1, 650	3, 110
Clinton	.. do	9, 032	5-21	701	800	1, 501
Council Bluffs	.. do	18, 059	5-21	930	1, 019	1, 949

* Estimated.

COEDUCATION IN THE PUBLIC SCHOOLS.

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Cities practising coeducation of the sexes, 1882—Continued.

Town.	State.	Population, 1880.	School age.	Enrolled in public schools October, 1882.		
				Male.	Female.	Total.
Davenport.....	Iowa.....	21,834	5-21	1,972	2,160	4,132
Des Moines.....	do.....	22,408	5-21	1,186	1,298	2,484
Dubuque.....	do.....	22,254	5-21	1,598	1,494	3,092
Keokuk.....	do.....	12,117	5-21	970	1,146	2,116
Ottumwa.....	do.....	9,004	5-21	694	807	1,501
Atchison.....	Kansas.....	15,105	5-21	1,030	1,281	2,311
Lawrence.....	do.....	8,511	5-21	789	874	1,663
Leavenworth.....	do.....	16,550	5-21	1,572	1,677	3,249
Topeka.....	do.....	15,451	7-21	1,471	1,673	3,144
Lexington.....	Kentucky.....	16,656	6-20	966	909	1,875
Newport.....	do.....	20,433	6-20	1,125	1,212	2,337
Auburn.....	Maine.....	9,556	4-21			1,600
Lewiston.....	do.....	19,083	4-21			2,256
Portland.....	do.....	33,810	5-21	2,900	2,336	5,236
Rockland.....	do.....	7,599	4-21			1,450
Brookline.....	Massachusetts.....	8,053	5-16	659	687	1,346
Cambridge.....	do.....	52,740	5-15	4,228	4,389	8,617
Chelsea.....	do.....	21,782	5-15			3,653
Chicopee.....	do.....	11,325	5-15	528	566	1,094
Fitchburg.....	do.....	12,405	5-15			2,200
Gloucester.....	do.....	19,329	5-15	2,007	2,032	4,039
Lowell.....	do.....	59,485	5-15	4,250	3,750	8,000
Lynn.....	do.....	38,284	5-15	2,876	2,815	5,691
Malden.....	do.....	12,017	5-15	878	902	1,780
Marlborough.....	do.....	10,126	5-15	1,032	980	2,012
Milford.....	do.....	9,310	5-21	814	655	1,469
Newton.....	do.....	16,995	5-15	1,657	1,783	3,440
Pittsfield.....	do.....	13,367	5-15	1,261	1,201	2,462
Somerville.....	do.....	24,985	5-15	2,457	1,930	4,387
Springfield.....	do.....	33,340	5-15	2,851	2,369	5,220
Taunton.....	do.....	21,213	5-15	2,153	1,932	4,085
Weymouth.....	do.....	10,571	5-15	940	935	1,875
Woburn.....	do.....	10,038	5-18	1,100	1,200	2,300
Worcester.....	do.....	58,295	5-18	5,200	4,400	9,600
Adrian.....	Michigan.....	7,849	5-20	621	675	1,296
Ann Arbor.....	do.....	8,061	5-20	904	749	1,653
Bay City.....	do.....	20,693	5-20	1,240	1,343	2,583
Detroit.....	do.....	116,342	5-20	6,443	6,917	13,360
East Saginaw.....	do.....	19,016	5-20	1,403	1,521	2,924
Flint.....	do.....	8,410	5-20	688	767	1,455
Grand Rapids.....	do.....	32,015	5-20	2,492	2,579	5,071
Kalamazoo.....	do.....	*11,500	5-20	952	1,077	2,029
Muskegon.....	do.....	11,262	5-20	910	1,018	1,928
Saginaw.....	do.....	10,525	5-20	937	925	1,862
Minneapolis.....	Minnesota.....	46,887	6-21	3,352	3,440	6,792
St. Paul.....	do.....	41,498	6-21	2,878	2,616	5,494
Stillwater.....	do.....	9,054	6-21	625	605	1,230
Winona.....	do.....	10,208	5-21	662	678	1,340
St. Joseph.....	Missouri.....	32,461	6-20	1,884	2,037	3,921
St. Louis.....	do.....	350,522	6-20	22,966	24,755	47,721
Sedalia.....	do.....	9,561	6-20	985	1,154	2,139

* Estimated.

Cities practising coeducation of the sexes, 1882—Continued.

Town.	State.	Population, 1880.	School age.	Enrolled in public schools October, 1882.		
				Male.	Female.	Total.
Lincoln	Nebraska	13,003	5-21	869	862	1,731
Omaha	do	30,518	5-21	2,017	2,069	4,086
Virginia City	Nevada	10,917	6-18	684	629	1,313
Manchester	New Hampshire ..	32,630	5-21	1,527	1,495	3,022
Nashua	do	13,397	5-15	1,233	1,198	2,431
Portsmouth	do	9,690	5-15	762	676	1,438
Elizabeth	New Jersey	28,229	5-18	1,317	1,447	2,764
Jersey City	do	120,722	5-18	7,390	7,859	15,249
Newark	do	136,508	5-18	7,351	8,167	15,518
Paterson	do	51,031	5-18			5,920
Albany	New York	90,903	5-21	5,613	5,768	11,381
Auburn	do	21,924	6-21	1,366	1,419	2,785
Binghamton	do	17,315	5-21	1,352	1,440	2,792
Buffalo	do	155,137	5-21	7,850	9,140	16,990
Elmira	do	20,541	5-21	1,617	1,599	3,216
Hornellsville	do	8,195	5-21	600	674	1,274
Hudson	do	8,070	5-21	579	511	1,090
Ithaca	do	9,105	5-21	774	1,025	1,799
Jamestown	do	9,357	5-21	880	960	1,840
Kingston	do	8,780	5-21	626	659	1,285
Lockport	do	13,522	5-21	1,354	1,311	2,665
Long Island City	do	17,129	4-21	1,344	1,383	2,727
Newburgh	do	18,049	5-21	1,347	1,250	2,597
Port Jervis	do	8,078	5-21	811	906	1,717
Rochester	do	89,363	5-21	5,230	5,041	10,271
Rome	do	12,194	5-21	895	941	1,836
Poughkeepsie	do	20,207	5-21	909	973	1,882
Saratoga Springs	do	10,820	5-21	700	878	1,578
Schenectady	do	13,655	6-21	875	950	1,825
Syracuse	do	51,791	5-21	3,797	4,158	7,955
Troy	do	56,748	5-21	3,420	3,917	7,337
Utica	do	33,913	5-21	2,798	2,780	5,578
Watertown	do	10,097	5-21	917	972	1,889
Wilmington	North Carolina ..	17,350	6-21	468	461	929
Akron	Ohio	16,512	6-21	1,489	1,579	3,068
Chillicothe	do	10,938	6-21	882	870	1,753
Cincinnati	do	255,130	6-21	15,659	15,191	30,850
Columbus	do	51,665	6-21	3,811	4,143	7,954
Dayton	do	38,677	6-21	2,772	2,891	5,663
Fremont	do	8,451	6-21	421	478	899
Hamilton	do	12,122	6-21	920	932	1,852
Ironton	do	8,857	6-21	848	845	1,693
Lima	do	7,567	6-21	684	691	1,375
Newark	do	9,602	6-21	892	890	1,783
Sandusky	do	15,838	6-21	1,109	1,228	2,337
Steubenville	do	12,093	6-21	1,019	1,071	2,090
Tiffin	do	7,879	6-21	575	578	1,153
Toledo	do	59,143	6-21	3,177	3,496	6,673
Portland	Oregon	17,578	6-21	1,354	1,461	2,815
Allegheny	Pennsylvania	78,681	6-15	5,160	5,424	10,584
Altoona	do	19,716	6-21	1,551	1,685	3,236

Cities practising coeducation of the sexes, 1882—Continued.

Town.	State.	Population, 1880.	School age.	Enrolled in public schools October, 1882.		
				Male.	Female.	Total.
Bradford	Pennsylvania	9, 187	6-21	605	630	1, 235
Chester	do	14, 996	6-21	1, 061	1, 156	2, 217
Danville	do	8, 346	6-21	709	825	1, 534
Erie	do	27, 730	6-21	1, 993	2, 007	4, 000
Lebanon	do	8, 778	6-21	648	759	1, 407
New Castle	do	8, 418	6-20	768	854	1, 622
Norristown	do	13, 063	6-21	919	918	1, 837
Pittsburgh	do	156, 381	6-21	10, 622	10, 970	21, 592
Pottsville	do	13, 253	6-21	1, 047	1, 042	2, 089
Scranton	do	45, 850	6-21	3, 035	4, 140	7, 175
Shenandoah	do	10, 148	6-21	626	1, 004	1, 630
Titusville	do	9, 046	6-16	696	761	1, 457
Williamsport	do	18, 934	6-21	987	1, 164	2, 151
Wilkes-Barre	do	23, 339	6-21	790	795	1, 585
Newport	Rhode Island	15, 693	5-	947	886	1, 833
Pawtucket	do	19, 030	5-21	1, 867	1, 757	3, 624
Providence	do	104, 852	5-	6, 507	6, 367	12, 874
Memphis	Tennessee	33, 593	6-21	1, 305	1, 665	2, 970
Nashville	do	43, 350	7-21	2, 495	2, 985	5, 480
Galveston	Texas	22, 248	6-18	1, 033	1, 142	2, 175
Houston	do	16, 513	8-18	657	807	1, 464
San Antonio	do	20, 561	6-18	895	995	1, 890
Burlington	Vermont	11, 364	5-20	500	490	990
Rutland	do	12, 149	5-20	482	388	870
Lynchburg	Virginia	15, 959	5-21	833	1, 011	1, 844
Norfolk	do	21, 966	5-21	620	584	1, 204
Richmond	do	63, 550	5-21	3, 020	4, 059	7, 079
Fond du Lac	Wisconsin	13, 091	4-20	800	836	1, 636
Janesville	do	9, 018	4-20	640	772	1, 412
La Crosse	do	14, 505	4-20	1, 008	1, 030	2, 038
Madison	do	10, 325	5-20	612	700	1, 312
Milwaukee	do	115, 578	4-20	7, 897	7, 603	15, 500
Racine	do	16, 031	4-20	1, 140	1, 161	2, 301

It is proper here to state that a few of the superintendents who have kindly supplied the statistics forming the two tables given have misunderstood the intention of this Office as to the wording of the third question in the circular of inquiry. These gentlemen have treated "enrolment of different scholars" as synonymous with "enumeration of school population," and in several instances have substituted "enumeration" for "enrolment" with their pens. These and a few other clerical errors have been corrected, so that the tables as published are believed to be correct summaries of the replies received as to the first five questions of the schedule from the 321 villages, towns, and cities mentioned. It is more convenient to treat the replies to the sixth, seventh, and eighth questions in another way.

REASONS FOR ADOPTING OR PREFERRING COEDUCATION.

The sixth question is obviously the most important of the three; the replies to it have, therefore, been carefully analyzed and grouped in such a way as to bring out clearly the reasons given and to evolve from these the arguments for coeducation as stated by the officials and school principals who are charged with the administrations of the graded systems in which it forms such a conspicuous part. Of course the men who have furnished these replies vary much in their mental characteristics, experience, points of view, and other circumstances. It is not strange, therefore, that some of them should have answered the question indefinitely or not at all, and that none of them should have included all the reasons that can be extracted from their replies when compared with one another.

REPLIES IN GENERAL TERMS.

Thirty-six of these gentlemen, then, answer indefinitely, or do not answer, the sixth question. A few of these answers are quoted here:

Syracuse, N. Y.: "It was thought to be the true way when the schools were organized."—EDWARD SMITH.

Central City, Colo.: "Common sense. I have been a teacher for more than 30 years. There is not a single tenable argument for separation of the sexes in education."—H. M. HALE.

Lewiston, Me.: "All things considered, the coeducation of our school children is regarded as less objectionable than to have them educated otherwise."—ABNER J. PHIPPS.

Grand Rapids, Mich.: "The subject is never discussed among us. No objections have been advanced."—A. J. DANIELS.

Replies like the foregoing or less definite were sent from Birmingham, Ala.; Denver, Colo.; Alton, Galesburg, and Geneseo, Ill.; Marshalltown, Iowa; Woburn, Mass.; Algonac and Grand Haven, Mich.; Glasgow, Mo.; Green Island, Port Jervis, and Schenectady, N. Y.; Lebanon and Wilkes-Barre, Pa.; and Burlington, Vt. No replies to the question were made by Bloomfield, Iowa; St. Paul, Minn.; St. Louis, Mo.; Kingston, N. H.; Elizabeth, N. J.; Buffalo, Norwich, and Whitehall, N. Y.; Cincinnati, Wooster, and Xenia, Ohio; Danville and Shenandoah, Pa.; Exeter and Newport, R. I.; and Madison, Wis.

Thirty-two of these thirty-six towns and cities answer the seventh question substantially as Bloomfield, Iowa, does, viz, that "the practice is as old as the school system." Buffalo and Whitehall, N. Y., and Exeter, R. I., do not reply. Thirty of the thirty-six answer, substantially, that no change is looked for, in reply to the eighth question, Geneseo, Ill., Green Island and Buffalo, N. Y., Shenandoah, Pa., and Exeter, R. I., not answering. The following sentence closes the reply from Glasgow, Mo.:

Our schools are doing very well, but I think coeducation of the sexes is not best for our public schools.—G. W. JONES.

FORMULATION OF THE OTHER REPLIES.

The answers of the other cities and towns that practice coeducation throughout their public school course give one reason or more for their practice. These, when analyzed and arranged in an orderly way, can be formulated as follows. Coeducation of the sexes is preferred, because it is—

- (1) NATURAL, following the ordinary structure of the family and of society;
- (2) CUSTOMARY, being in harmony with the habits and sentiments of every-day life and the laws of the State;
- (3) IMPARTIAL, affording one sex the same opportunity for culture that the other enjoys;
- (4) ECONOMICAL, using the school funds to the best advantage;
- (5) CONVENIENT, both to superintendent and teachers, in assigning, grading, teaching, and discipline; and
- (6) BENEFICIAL to the minds, morals, habits, and development of the pupils.

COEDUCATION THE NATURAL METHOD.

Twenty-five cities prefer and practise coeducation for the first of these reasons:

New Britain, Conn.: "It is the natural arrangement that boys and girls should be together in school as they are in the family."—HENRY E. SAWYER.

Pittsburgh, Pa.: "It is natural; we find boys and girls together in families and we infer that their Creator favors their coeducation."—GEORGE J. LUCKEY.

Pawtucket, R. I.: "We are created male and female; all the impulses and activities of nature enforce coexistence; if we must live together, we must be educated to that end; to educate separately is an attempt to change the natural order of human economy."—ANDREW JENCKS.

Cambridge, Mass.: "Probably it was thought that God's plan in instituting the human family was a good one to follow."—FRANCIS COGSWELL.

Replies like the foregoing were received from Meriden, Conn.; Greencastle, Ind.; Holton, Kans.; Chelsea, Lowell, Newton, and Worcester, Mass.; Bay City, East Saginaw, Paw Paw, and Ypsilanti, Mich.; Minneapolis, Minn.; Nashua, N. H.; Phillipsburg, N. J.; Lockport and Rochester, N. Y.; Akron, Chillicothe, and Toledo, Ohio; Chester and Erie, Pa. The seventh question is answered by all substantially as by those previously mentioned. Lowell, Mass., and Paw Paw, Mich., do not answer the eighth question; the rest say that "no change" is the proper reply. The following is the last phrase of the return from Erie, Pa.:

In higher studies more girls than boys excel, though the very best students are more likely to come from the male side.—H. S. JONES.

COEDUCATION THE CUSTOMARY OR LEGAL METHOD.

Forty-five answers are to the general effect that coeducation is the customary and legal method in the community. The following are quoted as examples:

South Bend, Ind.: "We never knew any other way; it grew up naturally as the city schools developed from the township schools."—JAMES DU SHANE.

Chicopee, Mass.: "Our schools have always been mixed."—J. T. CLARK.

Virginia City, Nev.: "It is the law of the State."—W. W. BOOHER.

Milwaukee, Wis.: "All our schools are mixed; the question has never been raised here."—JAS. MACALLISTER.

In like manner answer Danbury and Waterbury, Conn.; Altamont, Aurora, Decatur, Elgin, and Rock Island, Ill.; Clinton, Marion, Mason City, and Newton, Iowa; Beloit, Olathe, and Ottawa, Kans.; Brookline, Fitchburg, Milford, Pittsfield, Somerville, and Weymouth, Mass.; Kalamazoo, Middleville, Negaunee, and Saginaw, Mich.; Cannon Falls, Minn.; Lincoln, Nebr.; Binghamton, Jamestown, Rome, and Watertown, N. Y.; Portland, Oreg.; Oil City, Titusville, and Williamsport, Pa.; Smithfield, R. I.; Alma, Hudson, Janesville, and Racine, Wis.

The authorities of the 43 places just named answer the seventh and eighth inquiries in the same way as the groups previously considered. The two following adduce custom as the principal reason for coeducation like the others, and report that it has existed from the first organization of their affairs; they answer the eighth question as follows:

Manchester, N. H.: "The question of separating the sexes above the primary grades has been discussed recently by a member of the committee, but no action has been taken as yet to effect any change."—WM. E. BUCK.

Traverse City, Mich.: "As our schools grow and we have to subdivide our grades, we may, as a matter of experiment and convenience, assign the boys to one teacher and the girls to another."—S. G. BURKHEAD.

COEDUCATION AN IMPARTIAL METHOD.

Only five answers to the sixth question give justice to both sexes as the reason for coeducation:

Fond du Lac, Wis.: "There is no appreciable difference in the mental capacity of boys and girls during public school life."—C. A. HUTCHINS.

The other replies classified under this head were from San Francisco, Cal.; Humboldt, Kans.; Hanover and Lapeer, Mich.

COEDUCATION THE MOST ECONOMICAL WAY.

Houghton, Mich.: "Economy is the chief reason. To obtain the same excellence in grading and instruction would require a much larger teaching force were the sexes separated."—H. B. SLAUSON.

Memphis, Tenn.: "The high school and seventh year grades were 'separate' prior to 1874; since then coeducation has been the rule in all grades, because less expensive."—CHARLES H. COLLIER.

Galveston, Tex.: "Lack of means to provide teachers and accommodations for separate instruction." (7) "Since October, 1881." (8) "No change thought of at present; coeducation works well, and has an elevating and refining influence on both sexes, with better results."—H. B. GWYNN.

Similar answers were made by La Fayette, Ind.; Wayne and West Bay City, Mich.; and Beatrice, Nebr.

COEDUCATION A CONVENIENT METHOD.

Detroit, Mich.: "Separation of the sexes greatly complicates the grading of a school, especially when the number of each sex in a grade is not large enough to form two full classes."—J. M. B. SILL.

Rahway, N. J.: "Convenience in grading and facility in discipline."—JOHN H. SHOTWELL.

Los Angeles and Sacramento, Cal.; Key West, Fla.; Lynn, Mass.; and Norfolk, Va., sent similar replies.

COEDUCATION BENEFICIAL TO THE PUPILS OF BOTH SEXES.

Fifty cities specify the beneficial results of coeducation as their reason for preferring it. Among these are the following:

Little Rock, Ark.: "It is mutually beneficial; it cultivates a respect and esteem in each sex for the other which is necessary in later years."—J. M. FISH.

Ottawa, Ill.: "Both sexes need the same training; as growth proceeds, each sex has a good influence on the other. Under proper control, neither sex demoralizes the other. In the past ten years I have not heard a syllable about separating the sexes in school except at the convent; the Sisters find it difficult to control bad boys, and they soon will have men in charge of the parish school for boys."—D. R. A. THORP.

Shenandoah, Iowa: "Meeting each other daily and working together promote a healthy and generous rivalry in studies, while improving the manners: boys become more gentlemanly and girls more lady-like."—C. H. GURNEY.

Independence, Kans.: "It affords a sort of culture that is not acquired when the sexes are educated separately."—C. W. CONWAY.

Lexington, Ky.: "It refines the boys and gives confidence and self-reliance to the girls; excites emulation; and has resulted in good, so far as we know."—JNO. O. HODGES, Jr.¹

Fremont, Nebr.: "The result is a more harmonious development of both sexes."—A. E. CLARENDON.

Little Falls, N. Y.: "Better results can be attained; the influence of each sex upon the other is healthful."—C. T. BARNES.

Wilmington, N. C.: "Better results can be secured with coeducation than could be without it."—M. C. S. NOBLE.

Minneapolis, Tex.: "It is regarded as conducive to the highest order of development."—W. M. CROW.

Rutland, Vt.: "Association of the pupils as they grow up is thought to be better, intellectually and morally, than separation."—J. J. R. RANDALL.

Similar answers were received from Bridgeport, Conn.; Amboy, Paris, Princeton, Rockford, and Sparta, Ill.; Richmond, Ind.; Burlington, Fort Madison, and Independence, Iowa; Atchison, Leavenworth, and Wichita, Kans.; Rockland, Me.; Malden and Springfield, Mass.; Douglas, Flint, and Flushing, Mich.; Blue Earth City and Waseca, Minn.; St. Joseph, Mo.; Nebraska City, Nebr.; Portsmouth, N. H.; Salem, N. J.; Albany, Kingston, Poughkeepsie, Saratoga Springs, and Utica, N. Y.; Columbus, Fremont, Gallipolis, Mount Vernon, Piqua, and Tiffin, Ohio; New Castle and Scranton, Pa.; Johnston, R. I.; and Black River Falls, Wis.

Bearing in mind, then, that coeducation has been adopted or is preferred by twenty-five places because it is "natural," forty-five places because it is "customary," five places because it is "impartial," seven

¹ This gentleman, in another part of his letter, says: "I graduated at Centre College in 1855, where President Young's four daughters were the first women in the State to attend a college for men. There are no better or more successful women than these in this State to-day. From that time to the present I have made this matter a study, and do not hesitate to say that the results of coeducation, so far as I have been able to see them, are good and only good."

places because it is "economical," seven places because it is "convenient," and fifty places because it is "beneficial," let us examine the replies that contain two or more of these reasons.

ECONOMY AND BENEFIT OF COEDUCATION.

Twenty-two towns and cities prefer coeducation as both economical and beneficial, as, for example:

Pontiac, Mich.: "The economic good of the community and the moral good of the pupils."—FERRIS S. FITCH.

Stockton, Cal.: "Less expensive, and a means of refinement and restraint."—S. P. CRAWFORD.

Salina, Kans.: "(1) We could not grade our school in any other way, on account of expense. (2) It is better for both sexes, because it restrains the boys and incites the girls to study."—T. D. FITZPATRICK.

Auburn, Me.: "(1) Economy of room; with a scattered population it would be impossible to sustain schools enough, most of them necessarily small, for separate instruction. (2) It is our belief that co-education is the best for both sexes."—G. T. FLETCHER.

Lake City, Minn.: "It is more economical; and better results in school are attained without any moral or physical detriment."—WILLIAM MOORE.

Like replies, in substance, were received from Oakland, Cal.; Mattoon, Morrison, and Quincy, Ill.; Princeton and Rushville, Ind.; Marengo, Iowa; Topeka, Kans.; Taunton, Mass.; Goodrich, Mich.; Montevideo, Minn.; Marshall, Sedalia, and Springfield, Mo.; Lancaster, Ohio; North East, Pa.; and Houston, Tex.

CONVENIENCE AND BENEFIT OF COEDUCATION.

The convenience and beneficial character of coeducation are asserted by the superintendents of Golden, Colo.; Norwich, Conn.; Peru, Ill.; Union City, Ind.; Davenport and Lemars, Iowa; Adrian and Eaton Rapids, Mich.; Hudson, N. Y.; Circleville, Newark, and Washington Court House, Ohio; Altoona and Norristown, Pa.; and by the following:

Joliet, Ill.: "Convenience; the influence of each sex upon the other. We have had coeducation forty years. I do not know that any change is in view, but I am convinced by twenty years' experience in public schools that from 9 to 14 years of age, inclusive, boys and girls should be educated separately; before and after that time of life I favor coeducation."—D. H. DARLING.

Morristown, N. J.: "We see no good reason why the sexes should be separated in educational pursuits more than in others. The present arrangement is much more satisfactory than the former one of separating the sexes. We secure better discipline and better work. Coeducation has been used for ten years. We see no reason for change."—W. L. R. HAVEN.

Ithaca, N. Y.: "For the sake of better grading and because it is believed to have a good influence on both sexes."—L. C. FOSTER.

Pottsville, Pa.: "It is much more convenient to grade the schools; both sexes do better work and behave better."—B. F. PATTERSON.

San Antonio, Tex.: "Because it affects favorably the gradation, discipline, and morals."—W. C. ROTZ.

Mr. Darling's personal opinion as to the advisability of separate training between the ages of nine and fifteen is in singular contrast to the emphatic opinion of Mr. Haven and to the following addendum taken from another of these nineteen replies: "We never intercept a 'smutty' note in mixed schools; in girls' schools we used to do so."

ECONOMY AND CONVENIENCE OF COEDUCATION.

Eighteen replies are to the effect that coeducation is preferred because it is economical and convenient.

Columbus, Ga.: "It is cheaper and makes a better gradation."—GEORGE M. DEWS.

Marietta, Ohio: "Economy and convenience of the pupils."—C. K. WELLS.

Union City, Tenn.: "No other practice is convenient. It would cost too much to teach the sexes separately."—T. C. KARNS.

Richmond, Va.: "It is thought to be the most economical and convenient plan."—E. M. GARNETT.

The other replies were received from Greenwich, Conn.; Mishawaka, New Albany, Rising Sun, and Vincennes, Ind.; Dubuque, Iowa; Newark, N. J.; Hornellsville, N. Y.; Sandusky, Ohio; Barrington, R. I.; Huntingdon, Tenn.; Corsicana, Tex.; Lynchburg and Staunton, Va.

NATURAL CHARACTER AND BENEFICIAL EFFECT OF COEDUCATION.

Twelve replies assert that coeducation is the natural method of teaching the young and that its effects are good:

Fort Wayne, Ind.: "It seems to us most natural; it produces good effects upon the conduct of both boys and girls and acts as a healthy incentive to good work."—JOHN S. IRWIN.

Portland, Me.: "It is nature's 'family' plan. We find it to be altogether the better way to secure effective study, good order, and good morals. Coeducation has been practised partially for a long time, wholly for five years past. No change proposed."—THOMAS TASH.

Allegheny City, Pa.: "It is the natural plan. The boys are not separated from their sisters in home work and amusements and there is no good reason why they should be separated at school. We have had boys and girls reciting together in school for more than twenty years; before my knowledge of the schools I am told that in some the sexes were taught separately, but now in all they study, recite, and play together, and we have not discovered any bad results from the plan."—JOHN MORROW.

The nine other replies of similar import were received from Ottumwa, Iowa; Gloucester and Marlborough, Mass.; Mason and Muskegon, Mich.; Boonville, Mo.; Long Island City, N. Y.; Ashtabula, Ohio; and Watsontown, Pa.

COEDUCATION ECONOMICAL AND CUSTOMARY.

Edwardsville, Ill.: "Economy and custom."—ISAAC H. BROWN.

So answer Sandwich, Ill.; Franklin, Ind.; Sedan, Kans.; La Crosse and New Holstein, Wis. The reply from Hamilton, Ohio, gives the same reasons, and concludes as follows:

"No change has been mentioned in the school board. I am in favor of teaching domestic economy to girls and political economy to boys, and I would separate the sexes in the intermediate grades (for this purpose and for physiological and other reasons)."—L. D. BROWN.

COEDUCATION CUSTOMARY AND BENEFICIAL.

Providence, R. I.: "The practice was deemed the best by experienced educators, and is entirely satisfactory. It was adopted more than forty years ago. No change is proposed."—DANIEL LEACH.

Attica, Ind.; McGregor, Iowa; Abilene, Kans.; Rochester, Minn.; Ironton and Lima, Ohio, concur.

ECONOMY, CONVENIENCE, AND BENEFITS OF COEDUCATION.

Fifteen towns and cities prefer coeducation to separation, as more economical, convenient, and beneficial.

Parkersburg, W. Va.: "Economy, convenience, and ease of discipline; emulation and mutual good influence of the sexes in every phase of school work."—A. L. PURFINGTON.

The substance of this reply is repeated in other words by Seymour, Ind.; Des Moines, Iowa; Newport, Ky.; Allegan and East Tawas, Mich.; Stillwater and Winona, Minn.; Louisiana, Mo.; Auburn and Carthage, N. Y.; Dayton, Ohio; Westerly, R. I.; Nashville, Tenn.; and Navasota, Tex.

COEDUCATION NATURAL, CHEAP, AND BENEFICIAL.

Jersey City, N. J.: "It is natural and economical; it is favorable to morality, good manners, progress in studies, true manliness, and true womanhood."—WM. L. DICKINSON.

Similar reasons are given by Rochelle, Ill.; Logansport, Ind.; Omaha, Nebr.; Greensborough, N. C.; Brenham and Bryan, Tex.

IT IS CUSTOMARY, CHEAP, CONVENIENT, AND BENEFICIAL.

Newburgh, N. Y.: "It has been the practice since the schools were organized; motives of economy and convenience; and a belief that at least as good results can be obtained."—R. V. K. MONTFORT.

Lawrence, Kans.; Ann Arbor, Mich.; Duluth, Minn.; and Towanda, Pa., reply in like manner.

IT IS CUSTOMARY, ECONOMICAL, AND BENEFICIAL.

Troy, N. Y.: "It has been the practice from the earliest period of our schools; is most economical; seems entirely unobjectionable."—DAVID BEATTIE.

So answer Wyandotte, Mich.; Belvidere, Ill.; Appleton, Minn.; and Orleans, Ind.

IT IS NATURAL, CONVENIENT, AND BENEFICIAL.

Chicago, Ill.: "Society includes both sexes. Discipline is easier, scholarship is better, and the sexes exercise a healthful influence over each other morally."—GEORGE HOWLAND.

In like manner are the answers from Danville, Ill.; Washington, Ind.; Oskaloosa, Iowa; and Sing Sing, N. Y.

WHY SOME OTHER PLACES PREFER COEDUCATION.

Indianapolis, Ind., North Providence, R. I., and Palestine, Tex., prefer it as *customary, economical, and convenient*; Paterson, N. J., and Steubenville, Ohio, as *natural, economical, convenient, and beneficial*; Freeport, Ill., and Northfield, Minn., as being *natural, impartial, cheap, and beneficial*; Brighton, Mich., and Durant, Iowa, as *impartial, cheap, and beneficial*; Kinmundy, Ill., and Cannelton, Ind., because it seems *natural, customary, and economical*; Knoxville, Iowa, and Menomonee, Wis., as being *natural and lawful*; Council Bluffs, Iowa, and Defiance, Ohio, as *customary, convenient, and beneficial*; Spencer, Ind., and Keokuk, Iowa, prefer it as being *impartial and economical*; Elmira, N. Y., as *customary and convenient*; Urbana, Ill., as *customary, impartial, and beneficial*; Bradford, Pa., as *customary, convenient, and beneficial*; Crawfordsville, Ind., as *natural, impartial, and beneficial*; Ludington, Mich., as *customary, impartial, and economical*; and Springfield, Ill., as *natural, impartial, convenient, and beneficial*. The most comprehensive answer of the series is that from Terre Haute, Ind.:

"Boys and girls play together and work together both before going to school and after leaving school. Coeducation has always been practised here. It is less expensive. Pupils can be accommodated with schools nearer their homes. They are more easily controlled by the teacher. They have a good influence on each other."—WM. H. WILEY.

Mr. W. W. Jamieson, of Keokuk, Iowa, while reporting for his city as he believes to be true, personally prefers "that from the beginning of the fourth grade the sexes should be separated."

The 146 towns and cities that give two or more reasons for preferring and practising coeducation may be said to divide their opinions as follows: 34 because it is "natural," 36 because it is "customary," 9 because it is "impartial," 94 because it is "economical," 71 because it is "convenient," and 108 because it is "beneficial." Combining these opinions with those of the 139 towns and cities that gave only one reason, we may see that, of 285 cities and towns practising coeducation, 158 favor it as "beneficial," 101 as "economical," 81 as "customary," 78 as "convenient," 59 as "natural," and 14 as "impartial."

TOWNS AND CITIES NOT PRACTISING COEDUCATION.

Nineteen cities and towns reported that they practised partial or entire separation of the sexes in their public schools. The following tables give statistical items as to the population, school age, enrolment, and the age and number of pupils coeducated in these places, so far as reported to the Bureau of Education:

Towns and cities practising partial or entire separation of the sexes in their public schools, 1882-'83.

Place.	State.	Population, 1880.	School age.	Enrolled October, 1882.		
				Male.	Female.	Total.
Mobile.....	Alabama.....	29,132	6-21	1,392	1,547	2,939
Wilmington.....	Delaware.....	42,499	6-21			6,239
Macon.....	Georgia.....	12,749	6-18	722	743	1,465
Belleville.....	Illinois.....	10,683	6-21	1,047	966	2,013
New Orleans.....	Louisiana.....	216,140	6-18	8,413	9,269	17,682
Baltimore.....	Maryland.....	332,190	6-21	17,173	17,517	34,690
Marblehead.....	Massachusetts.....	7,467	6-16	575	611	1,186
Newburyport.....	do.....	13,538	5-17	1,100	1,200	2,300
Vicksburg.....	Mississippi.....	11,814	5-21	350	600	950
New Brunswick.....	New Jersey.....	17,166	5-18	1,074	1,002	2,076
Brooklyn.....	New York.....	566,688	5-21	31,958	32,675	64,633
Allentown.....	Pennsylvania.....	18,063	6-21	1,584	1,484	3,078
Easton.....	do.....	11,924	6-21	971	1,077	2,048
Harrisburg.....	do.....	30,762	6-21	2,456	2,656	5,112
York.....	do.....	13,940	6-21	1,136	1,065	2,201
Charleston.....	South Carolina.....	49,999	6-16	1,429	1,849	3,278
Knoxville.....	Tennessee.....	9,693	6-21	904	1,104	2,008
Austin.....	Texas.....	10,960	7-21	473	590	1,063
Alexandria.....	Virginia.....	13,659	5-21			1,100

*Estimated.

Place.	State.	Between ages of—	Coeducation practised.		
			Number of pupils coeducated.		
			Male.	Female.	Total.
Mobile.....	Alabama.....	6-9	322	313	635
Wilmington.....	Delaware.....	6-12			4,907
Macon.....	Georgia.....	6-13	656	649	1,305
Belleville.....	Illinois.....	6-13	1,020	932	1,952
New Orleans.....	Louisiana.....	6-14	1,159	1,280	2,439
Baltimore.....	Maryland.....	6-13	2,708	2,229	4,937
Marblehead.....	Massachusetts.....	6-8, 14-16	268	290	558
Newburyport.....	do.....	5-17	236	291	527
Vicksburg.....	Mississippi.....	5-21	259	409	668
New Brunswick.....	New Jersey.....	5-10, 13-18	196	216	412
Brooklyn.....	New York.....		3,891	4,518	8,409
Allentown.....	Pennsylvania.....		15	38	53
Easton.....	do.....	6-10	368	401	769
Harrisburg.....	do.....	6-14	872	908	1,775
York.....	do.....	14-18	153	150	303
Charleston.....	South Carolina.....	6-11, 6-16	1,047	1,201	2,248
Knoxville.....	Tennessee.....	10-12	565	609	1,174
Austin.....	Texas.....				
Alexandria.....	Virginia.....				

REASONS AGAINST COEDUCATION.

Twelve of the nineteen towns and cities under consideration appear to have a decided aversion to coeducation. Their replies to the sixth, seventh, and eighth questions follow their names:

Mobile, Ala.: "(6) Necessity, from want of means to erect buildings for each sex in all cases. (7) Thirty years. (8) All schools eventually will be separated into male and female departments, because the plan is conservative. I have often changed my mind on this subject, but long experience has taught me that separation is the safer plan of education, especially in cities."—E. R. DICKSON.

Wilmington, Del.: "(6) The opinion held by a very large majority of our people that it is better that the sexes should be separate after the age of twelve. (7) More than fifteen years. (8) No change. Two years ago coeducation in the grammar and high schools was urged by some members of the school board, but the opposition to it was found to be quite general."—DAVID W. HARLAN.

Bellerille, Ill.: "(6) Better discipline; proper attention can be paid to the physical requirements of girls at the critical period—maturity. (8) No change at present; as soon as possible, the practice will be extended to the twelfth year."—HENRY RAAB.

New Orleans, La.: "(6) Our 'mixed' schools are nearly all ungraded, and are found in outlying districts, depending also upon size of building, number of pupils, and convenience of parents. Separate schools for each sex are preferred when means will allow. (7) Thirty years to a limited extent. (8) No change."—WM. O. ROGERS.

Baltimore, Md.: "(6) The schools formerly called English-German schools are attended by pupils of both sexes. This is not the case in any other school, unless, as in these, there is not a sufficient number of pupils to organize male and female departments. (7) Since the organization of the schools. I am not aware of any proposed change. I think popular sentiment here is in favor, decidedly, of separate schools for the sexes."—HENRY A. WISE.

Vicksburg, Miss.: "(6) In the schools for whites, except the primaries, the sexes have been separated in accordance with public sentiment. In the colored schools the sexes are educated together and the experiment is working well. (8) No change."—H. T. MASON.

Brooklyn, N. Y.: "(6) The rule is separation of the sexes, unless the exigencies of the school require a different course. The reason is that teachers capable of instructing girls often fail in managing boys, and vice versa. (8) The only change in view is one in the direction of a more complete separation of the sexes for the reason given above."—C. PATTERSON.

Allentown, Pa.: "(6) Coeducation here is a temporary necessity for 53 pupils. We never had it in the public schools of this city, and, probably for that reason only, the sentiment of the community is strongly opposed to it. (8) No change."—L. B. LANDIS.

Easton, Pa.: "(6) Convenience and economy are the only apparent reasons. (7) Thirty-two years. (8) The question of 'change' in this respect has not been discussed as yet, although I have decided convictions relative thereto."—WM. W. COTTINGHAM.

York, Pa.: "(6) Special objections to coeducation held by a majority of the school board. (7) During the past year. (8) The tendency is to entire separation of the sexes. This will change more or less from year to year as the board changes."—W. H. SHELLEY.

Charleston, S. C.: "(6) Custom, economy, convenience. The custom has prevailed here for years. It is found more convenient for management. Up to the present, the primary and intermediate schools for whites have been 'mixed'; the latter are now separate. We have now, in each white school, a girls' grammar and a boys' grammar."—

department. The colored schools are all mixed. (7) For whites, recently; for colored children, for several years."—WILLIAM SIMONS.

Alexandria, Va.: "There is not, and there never has been, coeducation of the sexes in the public schools here."—WM. F. CARNE.

SOME MILDER COMMENTS.

The seven replies remaining for consideration show a less decided attitude or indicate practical reasons for only partial separation. They are as follows:

Macon, Ga.: "(6) Such was the custom in vogue when public schools were introduced; it was considered economical, and the schools are more efficient; it secures a separate teacher for every class. (7) Coeducation has existed to some extent since the beginning of the town; it became more general in 1872, when the public school system was adopted. (8) No change. The plan has worked with entire satisfaction in the primary and grammar schools; its immediate effect is to secure better (kinder) treatment for boys, and affords girls a protection against undue stimulation; the boys cannot keep up if the girls are required to do their best."—B. M. ZETTLER.

Marblehead, Mass.: "(6) There is no evidence on this point; the plan for the grammar schools, male and female, was adopted before the Revolutionary War; about 1665 the boys' grammar school was established and a girls' grammar school about 1765. Our schools are graded on a standard of qualification, not of age; in the primary grades we have coeducation; in grammar schools, separation; and in the high school (established 1835), coeducation, on the score of economy, there being only 73 pupils in attendance on it, most of whom are over fifteen years old."—N. P. SANBORN.

Newburyport, Mass.: "(7) Ten years. We have but three schools for both sexes: a high school, one grammar school, and one primary school. (8) No change."—J. A. MERRILL.

New Brunswick, N. J.: "(6) We have coeducation in some primary schools for convenience of grading, and in the high school on account of convenience in grading, economy, and better results. In most of the primary and grammar schools the sexes are separate, because the buildings, yards, &c., were arranged with that purpose. (8) No change is proposed. I do not think any objection would be made to coeducation provided our buildings were suitably constructed."—HENRY B. PIERCE.

Harrisburg, Pa.: "(6) Convenience, to secure better grading in suburbs, to locate pupils near their homes; economy, in reducing the number of schools. (7) To some extent, for thirty years. (8) A few mixed schools are opened yearly; more are proposed, partly as convenience, partly for economy, by limiting the number of schools, and partly for the mutual restraint and beneficial effects that the sexes exert on each other."—L. O. FOOSE.

Knoxville, Tenn.: "(6) Because our grades are so arranged that all the girls from 12 to 18 can be best taught by themselves. (7) Two years. (8) No change."—ALBERT RUTH.

Austin, Tex.: "(6) In primary and grammar schools coeducation is practised; the mutual influence of the sexes during this period is found valuable. In the high school the sexes prepare their lessons separately. (7) One year. (8) No change."—J. B. WINN.

CONCLUDING REMARKS.

The mass of new material is now before the reader as compactly and systematically arranged as the importance of the subject and the ability of the editor would permit. It only remains to remind the reader that

both the general instruction of girls and the common employment of women as public school teachers depend, to a very great degree, on the prevalence of coeducation, and that a general discontinuance of it would entail either much increased expense for additional buildings and teachers or a withdrawal of educational privileges from the future women and mothers of the nation.

1. The first part of the document is a list of the names of the persons who were present at the meeting.

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CIRCULARS OF INFORMATION

OF THE

BUREAU OF EDUCATIO

No. 3-1883.

PROCEEDINGS OF THE DEPARTMENT OF SUPERINTENDENCE OF
NATIONAL EDUCATIONAL ASSOCIATION AT ITS MEETING
AT WASHINGTON, FEBRUARY 20-22, 1883.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.

1883.

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LETTER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., May 18, 1883.

SIR: The accompanying papers contain the records of the proceedings of the recent meeting of the Department of Superintendence of the National Educational Association, together with the addresses presented during the several sessions.

Their publication in this form has the advantage of bringing out the carefully prepared statements of those who presented papers and the various experiences and views of others who joined in the discussions.

The demand for the proceedings of the previous meeting has been so great as to exhaust the first edition and require a second issue.

Very respectfully, your obedient servant,

JOHN EATON,
Commissioner.

The Hon. SECRETARY OF THE INTERIOR.

Publication approved.

M. L. JOSLYN,
Acting Secretary.

NATIONAL EDUCATIONAL ASSOCIATION.

DEPARTMENT OF SUPERINTENDENCE.

PERSONS IN ATTENDANCE.

General S. C. Armstrong, principal of Normal and Agricultural Institute, Hampton, Va.

Principal George P. Beard, State Normal School, California, Pa.

Professor Albert S. Bickmore, PH. D., American Museum of Natural History, Central Park, New York.

Hon. John M. Birch, superintendent of schools, Wheeling, W. Va.

Professor J. H. Blodgett, Rockford, Illinois.

Henry C. Brown, esq., secretary of the international committee of the Young Men's Christian Association, New York, N. Y.

Mr. G. M. Brumbaugh, Normal College, Huntingdon, Pa.

Hon. B. L. Butcher, State superintendent of free schools, Wheeling, W. Va.

Hon. N. A. Calkins, president of the Department of Superintendence, assistant superintendent of schools, New York, N. Y.

Hon. G. F. T. Cook, superintendent of colored schools, Washington, D. C.

Hon. Newton C. Dougherty, superintendent of schools, Peoria, Ill.

Mrs. Sarah B. Earle, member of board of education, Worcester, Mass.

Professor J. R. Eastman, Naval Observatory, Washington, D. C.

Rev. Horace Eaton, D. D., Palmyra, N. Y.

Hon. John Eaton, United States Commissioner of Education, Washington, D. C.

Hon. C. G. Edwards, assistant superintendent of schools, Baltimore, Md.

Miss A. C. Fletcher, Indian Territory.

A. P. Flint, esq., Philadelphia, Pa.

W. H. Gardiner, esq., chief clerk Bureau of Education, Washington, D. C.

Rev. J. A. Hamilton, Norwalk, Conn.

Hon. Henry M. Harrington, superintendent of schools, Bridgeport, Conn.

Hon. Wm. T. Harris, LL. D., Concord, Mass.

Rev. A. G. Haygood, D. D., general agent of the John F. Slater fund, Oxford, Ga.

- Hon. John Hitz, Washington, D. C.
 Hon. Dwight Holbrook, superintendent of schools, Clinton, Conn.
 B. T. Janney, esq., supervising principal, Washington, D. C.
 Hon. H. S. Jones, PH. D., superintendent of schools, Erie, Pa.
 J. R. Keene, esq., supervising principal, Washington, D. C.
 Hon. John E. Kimball, superintendent of schools, Newton, Mass.
 Hon. William Lawrence, First Comptroller of the Treasury, Washington, D. C.
 B. G. Lovejoy, esq., member of school board, Washington, D. C.
 Hon. George J. Luckey, superintendent of schools, Pittsburgh, Pa.
 G. G. McLean, esq.
 Hon. A. P. Marble, PH. D., superintendent of schools, Worcester, Mass.
 Rev. A. D. Mayo, Boston, Mass.
 Professor H. P. Montgomery, supervising principal of colored schools, Washington, D. C.
 W. S. Montgomery, A. M., supervising principal of colored schools, Washington, D. C.
 Hon. M. A. Newell, LL. D., State superintendent of public instruction, Baltimore, Md.
 Hon. B. G. Northrop, LL. D., ex-secretary State board of education, Newton, Conn.
 Professor C. C. Painter, Nashville, Tenn.
 Rev. Wm. S. Palmer, D. D., chairman board of education, Norwich, Conn.
 Rev. W. W. Patton, D. D., president of Howard University, Washington, D. C.
 Professor E. A. Paul, principal of high school, Washington, D. C.
 Hon. Jos. Desha Pickett, State superintendent of public instruction, Frankfort, Ky.
 Professor Zalmon Richards, Washington, D. C.
 Hon. A. J. Rickoff, superintendent of schools, Yonkers, N. Y.
 Hon. Henry R. Sanford, superintendent of schools, Middletown, N. Y.
 J. W. Schermerhorn, esq., New York, N. Y.
 Hon. James H. Smart, ex-State superintendent of public instruction, Indianapolis, Ind.
 Hon. R. W. Stevenson, superintendent of schools, Columbus, Ohio.
 President Eli T. Tappan, Kenyon College, Gambier, Ohio.
 Dr. Henry R. Waite, special educational agent of the Census Office, Washington, D. C.
 Dr. Charles Warren, statistician of the Bureau of Education, Washington, D. C.
 Hon. Joseph White, ex-secretary State board of education, Williamstown, Mass.
 Hon. J. O. Wilson, superintendent of schools, Washington, D. C.
 J. M. Wilson, esq., Washington, D. C.

FIRST SESSION—TUESDAY EVENING.

WASHINGTON, *February 20, 1883.*

The members of the Department of Superintendence of the National Educational Association and their friends met in the High School Hall at 8 o'clock P. M., Hon. N. A. Calkins, the president, in the chair, and Hon. H. S. Jones secretary.

After calling the meeting to order and announcing the sessions for the following day, Mr. CALKINS said:

In introducing to you the speaker for this evening, it is proper that I should state, in regard to the selection of the subject which he will present—natural history in public schools—that the invitation to Professor Bickmore to come before you was suggested by the character of the work which he is doing for the public schools of the city of New York. Believing that there would be many of those in attendance at this convention who would be pleased to learn what is done there in the matter of introducing natural history into the public schools and knowing that any mere description of that work would fail to give you an accurate idea of it, Professor Bickmore was invited to come here, to bring with him some of his apparatus, and to show you what he is doing for the schools of that city.

I may add that arrangements have been made with Professor Bickmore by which he gives on Saturdays, in the Museum of Natural History at Central Park, lectures before teachers of the grammar schools, as a means of preparing them to give instruction in natural history in the schools where they are employed. These lectures are thus made to awaken an interest in this subject among the pupils in the schools, which leads them to visit the museum, as many do with their teachers. During lessons in school, which follow these visits, questions are asked these pupils concerning the animals which they saw and the subject of the lesson is discussed in an intelligent manner.

But Professor Bickmore will be able to represent to you what he is doing much better than I can tell you. I now have the pleasure of introducing to you Prof. Albert S. Bickmore, of the American Museum of Natural History, Central Park, New York, who will address you on the subject of

NATURAL HISTORY IN PUBLIC SCHOOLS: ITS UTILITY AND PRACTICABILITY AS ILLUSTRATED BY THE METHODS ADOPTED IN NEW YORK CITY.

Professor BICKMORE said:

MR. PRESIDENT, LADIES AND GENTLEMEN: About two years and a half ago the authorities of the museum with which I am associated addressed

a letter to the board of education of our city, suggesting that they select a limited number of their teachers to come up to our institution, and that I should give them conversational talks (we scarcely call them lectures) upon the objects that we had on exhibition in our halls. It proved to be an extremely stormy day in winter when the first gathering took place, but all those invited were present, and we were at once impressed with the magnitude and importance of the work thus thrust upon us. The attendance of the teachers was so constant that the six informal talks were extended to eighteen or twenty. The board of education then addressed us a letter expressing their high estimation of the work thus begun and asking that fifty teachers be allowed to be present at the next course. At the conclusion of these lectures the board wrote us a second letter stating that there were one hundred and four schools in our city under their direction and asking if accommodations could be made for at least one teacher from each of them, in order that there might be a distinct, definite influence going out from our museum every week to each school, conveying important instruction and aiding the teachers to give the most complete information to their pupils upon human and comparative anatomy and zoölogy and other subjects upon which the board might require oral instruction to be given in the common schools. A course on zoölogy is now in progress, and every Saturday our little hall is filled to overflowing.

Believing that the sense of sight is the royal avenue to the mind and that all information which can be conveyed by the eye is much more complete and satisfying than that conveyed by the ear, I planned to give the instruction desired by ocular demonstration, that is, by exhibitions. A large part of the objects we wished to display to the teachers are too small to be seen distinctly by the naked eye, and yet their remains in some places make up the chief bulk of mountain ranges. Other animals, as the deer, the ox, the horse, the moose, and the elephant, are far too large to be transported from the exhibition halls to the lecture room, and yet they are among the most interesting objects to the children that are to be found in the animal kingdom. How we could easily and without loss of time place these various objects visually before the class of teachers was the problem that came to us when we found the personal interest they manifested in this department of natural science. We purchased the most complete stereopticon to be obtained, but we found that photographic transparencies of the objects we desired to display could not be discovered in any of the lists of slides offered for sale in London, Paris, or Vienna, and that, if any teacher had hitherto prepared them, he had never published any account of his work nor indicated how his successors might avail themselves of his labor.

A few views of the animals in the Zoölogical Society's Gardens of London were found and a few copies from works on anatomy; but no continued, systematic series of illustrations existed, so far as we are aware. An assistant skilled in this department of the photographic art was em-

ployed to make negatives and slides from the specimens on exhibition in our public halls, supplemented by copies from the best illustrations in standard works on natural history. The prominent book and map publishers of London and New York cordially aided by striking off uncolored impressions of their wood-cuts and engravings for the use of our photographer, who has already made some 800 negatives, in addition to the large series of views we have purchased from every available source. The transparencies which we have made at the museum so far exceed in clearness and brilliancy any that we have found in the market that we propose in time to use only prints on glass from negatives of our own manufacture. This system of illustration can be made just as elaborate as the time and means of the instructor may permit. What we have so far accomplished we regard merely as a beginning in the important work of enabling teachers to properly educate their pupils in zoölogy. The same mode of effective illustration is equally applicable and important in teaching physical geography, geology, and mining, and every other department of natural science which can be rendered more instructive and therefore more interesting by photographic views, diagrams, or ideal sketches. The field of labor thus opened to the instructor is a wide one, for it demands that he shall not only be thoroughly conversant with the latest and best maps and drawings and other means of illustration that now exist, but that he shall keep constantly adding new transparencies from the latest explorations in these various departments in every land.

The negatives being once provided, the slides can be supplied at little more than half the price now paid for such transparencies, and, while we shall use here this evening the oxyhydrogen or lime light we have brought from New York, I am happy to say that I have seen these same slides shown by a light burning simply kerosene oil, and the illumination was sufficient for an ordinary class room containing 50 to 75 pupils. Any teacher here present that can take proper care of an ordinary kerosene lamp can, therefore, with the simple lantern of which I speak, effectively repeat to his class the illustrations which our lime light will now place on the screen.

This mode of exhibition necessitates a darkened room, and, as I have experienced the inconvenience of not being able to exhibit specimens or make diagrams on the blackboard while the illustration is on the screen, I have introduced into my lecture room a second lantern, which throws a light upon any portion of the blackboard I may desire, so that the classification of the animals to be shown is constantly before the audience while the several specimens appear in succession on the screen. In an adjoining place in the room I have fitted up a series of shelves, like a case in our public hall, on which the specimens to be described are arranged. Diaphragms pierced with round or square holes of varying dimensions will light up any portion or all of the specimens on the shelves, and in this simple method we are able to transfer our audience instantly

from the lecture room to our exhibition halls, and that, too, in a more effective way than if the audience actually passed into one of the large rooms, for in the hall some persons would be looking at one object in one case while others would be interested in other objects in other cases; but by confining the light to the specimens that are being described we concentrate the attention of all to the object or group of objects we are discussing, and the mind of the speaker and the minds of all his audience necessarily move on from point to point in the discussion in perfect harmony.

Professor Bickmore then gave a description of the building occupied by the American Museum of Natural History, which contains four stories and a gallery and was erected at an expense of \$700,000. He then showed upon a large screen, by the aid of a stereopticon, the following subjects, calling attention to the principal facts of interest concerning each: protozoans: a young sponge, the Venus flower basket, corals, ideal sketch of the bottom of the sea in the Mediterranean, a coral island (atoll, Bermudas), brittle stars; mollusks: a common salt water mussel, oysters, the mode of dredging off the shores of France, a dredge, a helix, a cone, a large squid, the squid as it was represented in old books; articulates: a "common" and a "spiny" lobster, a lobster car, the violet crab of Jamaica; insects: a minute insect, a flea, Colorado beetle; vertebrates: the arm and hand of a fish, tortoise, whale, deer, seal, dog, mole, bat, ape, and man; fishes: a climbing perch, the circulatory system of a cod; reptiles: a boa constrictor, a water boa or anaconda, the structure of the fangs of a rattlesnake, an iguana, a tropical scene from Brehm's Thierleben, chameleon, turtle catching, an ideal view of marine animals in the Triassic period, a landscape in the coal period; birds: an ostrich in the Paris museum, a gull, sand-piper, flamingo, a male and female humming bird, the migration of birds, a view on a Siberian river in early spring, the nest and young of the gray plover, the light-house at Heligoland on a migration night, a map of our own country, a map of South America, a relief map of Europe; mammals: the skeleton of a cow, the Brahman bull, Brahman cow and calf, antelope from the Rocky Mountains, a giraffe, the skeleton of a giraffe, skeleton of a deer, a fossil deer found in Ireland, a camel, a dromedary, skeleton of a camel, the wild boar of West Africa, the skeleton of a hog, African wart hog, rhinoceros, the skeleton of a rhinoceros, a horse, zebra, zebra hunting in South Africa, a European wolf, a royal Bengal tiger, lion, the skeleton of a lion, the animals of the stone age; man: two slides of human anatomy (colored), the African race—a view on the Congo, Stanley and his followers, the Zulus; the Mongolian race—a Chinese mandarin, a Chinese hamlet among the tea hills, curling the tea leaves, sorting tea; the Aryan race—a native of India, a Mohammedan prince of India, a Mohammedan temple at Lahore.

The president announced that there would be a business meeting

immediately after the dispersion of the audience and requested the members of the department to remain.

At this meeting the following resolution was offered by General EATON, and was adopted:

Resolved, That an executive committee of three members of the department be appointed by the president, and it shall be the duty of said committee to arrange and report an order of proceedings for this meeting.

The president named as this committee Messrs. Wilson, of Washington; Marble, of Worcester; and Pickett, of Kentucky.

Mr. WILSON offered the following:

Resolved, That the president of this department be requested to appoint a committee whose duty it shall be to represent to Congress the views of this association on the subject of national aid to education, and to take such further action in the premises as may be deemed advisable.

After the unanimous adoption of this resolution, the department adjourned to meet on the following morning in the lecture room of the Congregational Church.

SECOND SESSION—WEDNESDAY MORNING.

WASHINGTON, *February 21, 1883.*

The members of the department assembled in the lecture room of the Congregational Church at 10 o'clock and were called to order by the president. Rev. A. D. Mayo opened the session with prayer.

Hon. Henry M. Harrington, of Bridgeport, Conn., was elected treasurer, and Mr. J. E. Rockwell, the stenographer, assistant secretary.

Mr. WILSON, from the committee on order of exercises, announced the following topics and speakers:

Address by the president.

Industrial education. Reports on the subject to be read by Supt. John E. Kimball and Dr. Charles Warren; followed by discussion.

Educational lessons of the census, by Dr. Wm. T. Harris.

The following letter was received:

OFFICE OF SUPERINTENDENT OF PUBLIC SCHOOLS,
FRANKLIN BUILDING,

Washington, D. C., February 20, 1883.

DEAR SIR: The members of the department of superintendence are cordially invited to visit the public schools of this city. The schools will be in session to-morrow, Wednesday, and will then be closed until Monday next. The Webster School, corner Tenth and H streets, and the Franklin School, corner Thirteenth and K streets, are both near the Congregational Church, the place of meeting for the department.

Very respectfully,

J. ORMOND WILSON,
Superintendent.

Hon. N. A. CALKINS,
President, &c.

The president announced that the treasurer would receive applications for membership in the association.

The assistant secretary read several expressions of regret from members unable to be present. Among the letters received were those from Hon. Thos. W. Bicknell, LL. D., editor *Journal of Education*, Boston, Mass.; D. N. Camp, A. M., New Britain, Conn.; Hon. Charles L. Collier, superintendent of schools, Memphis, Tenn.; Hon. A. Coward, State superintendent of public instruction, South Carolina; Hon. J. L. M. Curry, LL. D., general agent of the Peabody education fund, Richmond, Va.; Rev. J. H. Cuthbert, Washington, D. C.; Hon. R. B. Farr, State superintendent of public instruction, Richmond, Va.; Hon. J. M. Fish, superintendent of schools, Little Rock, Ark.; Hon. Aaron Gove, superintendent of schools, Denver, Colo.; E. L. Kellogg, esq., 21 Park Place, New York; Charles G. Leland, esq., Philadelphia, Pa.; Hon. E. B. Neely, superintendent of schools, St. Joseph, Mo.; Hon. James MacAlister, superintendent of schools, Milwaukee, Wis.; W. A. Mowry, PH. D., Providence, R. I.; Rev. A. M. Pitzer, D. D., Washington, D. C.; Lieut. R. H. Pratt, U. S. A., superintendent of Indian training school, Carlisle Barracks, Pa.; Hon. W. C. Rote, superintendent of schools, San Antonio, Tex.; Hon. J. C. Shattuck, State superintendent of public instruction, Denver, Colo.; W. E. Sheldon, esq., editor of *The Primary Teacher*, Boston, Mass.; Governor Hugh S. Thompson, Charleston, S. C.; Gen. Francis A. Walker, Census Office, Washington, D. C.; Hon. J. P. Wickersham, LL. D., ex-State superintendent of public instruction, Lancaster, Pa.; Hon. C. S. Young, State superintendent of public instruction, Carson City, Nev.

Mr. CALKINS, the president of the Department of Superintendence, delivered the following address:

ADDRESS OF THE PRESIDENT.

MEMBERS OF THE DEPARTMENT OF SUPERINTENDENCE OF THE NATIONAL EDUCATIONAL ASSOCIATION: Once again representatives of the educational systems of the States and cities of the nation have assembled at its capital to consider matters pertaining to the interests of public instruction. The fields of labor occupied by those gathered here are widely separated and the work performed by each has differing characteristics, yet there exists a union of purpose among all which binds us together as a brotherhood, laboring for the noble cause that contributes much toward the stability and prosperity of our beloved country.

I rejoice with you that it has become our annual custom to come hither and confer with each other fraternally in relation to those things that belong to a general diffusion of education among all classes of people, and that in this work we have common interests and aims.

The circumstances attending our respective spheres of work often compel attention to matters that demand serious deliberation and the exercise of sound wisdom to guide aright in the acts that must follow. In the midst of the difficulties that sometimes meet us we long to

inquire of a successful brother who has overcome similar obstacles and learn from his experience. These fraternal conferences furnish opportunities for such inquiries; they also inspire our hopes and strengthen our hands for better work and greater success in the cause of education.

The present outlook as to progress in the direction of better elementary teaching and the corresponding results that follow in general education is gratifying. During the past ten years great strides have been made by the thinking, progressive teachers toward a clearer knowledge of child nature and in right ways for reaching child mind. The results appear in the more general development of power among the pupils of these teachers to observe carefully, of ability to think understandingly concerning that which has been seen, and in the firm foundation thus laid for subsequent attainments in knowledge.

It is fast becoming understood that mere imitators soon attain their growth in teaching and that the end of real progress with them is near the place of starting. Among the hopeful signs for the future is the fact that so many of our schools are becoming fields in which the teachers are themselves making important discoveries in the true work of education, instead of contentedly following the traditionary customs of the past. The fact that so many teachers are turning their attention to psychology and earnestly inquiring after a science of education which may guide them in the art of teaching is a hopeful sign.

Great changes, also, have been made in the means for diffusion of educational intelligence during the past decade. We now have not only monthly and bimonthly but weekly journals, with large circulations, devoted to the interests of education in all its varied aspects. In addition to these the weekly and daily papers reflect the general interest of the public in relation to educational matters in their several localities.

Whenever the minds of those engaged in the work of education in one locality become unusually active in relation to a particular department of the work or concerning anything intimately affecting it, that activity widens and widens, like the circling waves on the placid lake into which a pebble has been tossed, until the distant shores are reached. Let the cry be raised in Boston against the burden of too many text books, and its wail will be echoed in Chicago and in San Francisco. If the public in Quincy discover a supposed better way for education, pilgrimages are made, and the towns of the East, of the West, and of the South are moved thereby.

As an instance of the increasing interest in matters that relate to methods of education, it may be mentioned that only a few months ago the Bureau of Education issued, as a circular of information on industrial art in schools, an article prepared by Charles G. Leland, esq., of Philadelphia, in which the way is pointed out for making hand work and school work coöperate with each other in general education and culture. Fifteen thousand copies of this circular of information have

been distributed already. The mail of a single day recently brought orders for more than six thousand copies.

In these and kindred facts, we may find much for encouragement and hope that the widening diffusion of intelligence on subjects pertaining to public education will ere long produce a corresponding extension of increased facilities and improved character in the common schools of every State. In view of these facts, we are reminded, also, of the necessity for careful consideration of matters relating thereto, especially by those who occupy positions which should exert great influence in deciding what the public schools shall become, by means of an intelligent public opinion. It is fitting on this occasion, therefore, that we direct our deliberations to those matters which relate intimately to the work of securing a better education for the people. And in these deliberations we should aim to call out the best thoughts and ripest experience on the topics considered, while each endeavors to say the most in the fewest words possible.

It was with the view of facilitating such deliberations that I placed in the programme of subjects for this meeting that of "School supervision: its specific aims and methods employed," and invited superintendents to consider topics designated under this subject and to present at this meeting results of their experience in relation thereto, in concise statements. And, further, I believe that a fair portion of the time of the meeting of this Department should be spent in efforts less formal than exhaustive addresses, with a view to making available the experience and wisdom of the greatest number in matters pertaining to our special duties in connection with the work of education. And with this view, I commend to your consideration the advisability of devoting the time of one session of this meeting to topics relating to school supervision. In this connection allow me to suggest that the least possible time be consumed in stating theories and that the chief aim of all be to show how the desired results in supervision may be secured. May each of us return to his field of labor with garnered treasures.

Finally, allow me to bespeak your counsel and coöperation in efforts to make this a profitable and pleasant meeting.

INDUSTRIAL EDUCATION.

Superintendent JOHN E. KIMBALL read the following letter from the principal of the Dwight School, Boston, with his report on industrial education :

BOSTON, February 12, 1883.

MY DEAR SIR: The experiment in industrial education is to be tried in the Sherwin School, under the auspices of the school board, during the coming season. In my own school the expenses were paid by a syndicate of ~~men~~ gentlemen and ladies who were interested in the subject. The success was ~~very~~ good and the board assumed charge of it, and now only await an appropriate council of \$500 to perfect their arrangements.

I have no doubt the success will be as decided

as it was with

me, and, if so, the plan will gradually grow into favor, and will be extended to other boys' schools throughout the city.

Yours, very truly,

JAMES A. PAGE.

Hon. N. A. CALKINS,

President Department of Superintendence.

REPORT.

CITY OF BOSTON.

IN SCHOOL COMMITTEE, July 5, 1881.

Ordered, That the principals of the Dwight and Sherwin Schools be authorized to accept the liberal offer of the Industrial School Association, and to permit such of their pupils to receive the instruction thus tendered as may, in their judgment, be best fitted to profit by it, the instruction to be given at such time as will least interfere with the progress of the pupils in their regular studies.

Ordered, That the abovementioned principals be instructed to report to the board the results of the instruction thus given at the end of the school year.

In compliance with the above order, I respectfully submit the following as my report:

In order to carry out the generous offer of the association, it was thought necessary, at the outset, to secure a good room in which the lessons in manual instruction might properly be given to the pupils of the two schools mentioned in the order. During the early fall considerable time was taken and many visits were made to different parts of the district in search of such quarters. The committee of the association found, however, no single place that was not open to serious objection either on the ground of poor light and ventilation or on that of bad surroundings.

It was not until they concluded to accept one of the school rooms of the Dwight School building, for the time being not in use, that they felt that any progress had been made in that direction.

It was owing to this difficulty of obtaining suitable rooms that Mr. Stone, of the Sherwin School, agreed with the committee and myself that the experiment had better be confined to one school, and that it should be the one under whose roof the trial was to be made. This room, though rather small (27 feet by 27 feet), was found in other respects to be a good one for the purpose.

The superintendent of public buildings ordered the seats to be taken out, the room was cleared of all its school furniture, the benches were placed, the tools bought, the teacher, Mr. Walter Bachelder, a carpenter and builder, of Chelsea, was secured, and everything was ready to begin in December, 1881, soon after the annual municipal election. This room had been designated by the city council as one of the voting places in the ward.

On the first Thursday of January the instructor gave his opening lesson to a class of eighteen boys, all that could be accommodated at the three benches at one time. These boys had been selected by myself from the graduating class, without reference to their standing, and no conditions were made with them except that they should not fall behind in their regular school work. Another class of the same number was selected from the second, third, and fourth classes, in order that the experiment might be tested by a wider application to ordinary grammar school material. Many of these latter had already handled tools, to a certain extent, either at home or in their fathers' workshops.

In arranging the practical details of the school with Mr. Bachelder, it had been agreed that school discipline should be maintained throughout the sessions; that the programme should be carefully written out on the blackboard; that each boy should be marked on the work done; and that a record of it should be kept. All this was faithfully carried out, and contributed, as I think, largely to the final success.

From this beginning to the close the school went on with unbroken and successful regularity. The teacher was promptly on hand, the order was good, the pupils were interested. It was delightful to see the eager desire manifested everywhere in the room to do the day's work well.

There was no absence, no tardiness. On one occasion a count was made, and seventeen out of eighteen pupils were found at work at one o'clock, when two was the hour for beginning.

It was feared that the noise of many hammers and other tools, in use at once (as was necessary in giving the same lesson to a whole class), would be so great that the other rooms on the same floor might be seriously disturbed. It was arranged, therefore, that the school in the adjoining room should proceed to the hall whenever a lesson in the training room was going on. Practically, however, no trouble was felt from this source. The walls in the school room were found to be so thick as to deaden the sound almost completely.

It was thought, also, that taking a part of a class away from its regular school work would result in more or less detriment to its progress in the prescribed studies. Here and there a complaint was made by the teacher of some second class boy that he was not doing his work well in his own room; but the pupil, in every case, was so anxious to remain in the "carpenters' class" that a word or two of warning was sufficient to bring his performance up to the standard again. * * * I consider that the results go far to prove that manual training is so great a relief to the iteration of school work that it is a positive benefit rather than a detriment to the course in the other studies.

The lessons, as prepared and given by Mr. Bachelder, are appended to this report and marked "A."

The school was visited by a large number of ladies and gentlemen, some of them from distant parts of the country and many of them anxious to learn the details of the plan upon which the school was carried forward. It was also visited by members of the school board, the superintendent of schools, and by many educators of all grades, thus showing a widespread interest in the general question of manual training in the public schools.

The cost of the school to the association from January to May, inclusive, five months, as furnished by Henry S. Grew, esq., treasurer, covers every item of expense in a school of this size, except those which, in another building, would have to be met under rent, lighting, and heating. The figures in full will be found in the paper marked "B."

Here, perhaps, I ought to close my report, having answered the demands of the order passed by the school board in giving the results of the instruction in manual training in the Dwight School. But I have a conviction, and, with permission, beg to state it here, that this instruction is surely in the line of the teaching that is to be. I would be glad, therefore, to see the experiment still further tried and all the experience which has been gained and all the plans which have been essayed fully formulated, availed of, and worked out into practical details, so that by and by, at the proper time, the best Kindergarten work, the best object teaching, and the best methods of manual instruction shall be known and, furthermore, shall be "organically combined with the whole scheme of education, and be made to support and coalesce with all the other studies of the child."

It is easy to see that this hand instruction may be made the means of teaching whole chapters of arithmetic more thoroughly. I have seen it made the means of teaching geography and natural history effectively in our own school.

There are high authorities who believe there can be no thoroughly clear, vigorous, and enlightened brain without the cultivated hand. Such are Sir Charles Bell, the author of the *Bridgewater Treatise on the Hand*, and Dr. William B. Carpenter, the physiologist, now visiting this country. If these men are right, then manual instruction introduced into our schools would be a step forward, because it would have

a special value of its own in developing the mind, which is the avowed purpose of all schools.

The great difficulty will be the lack of competent teachers. But that difficulty may be met, as it has been successfully met once before. What has been done in the matter of drawing may yet be done in industrial work. A corps of teachers, as suggested by General Walker, may be furnished by the Institute of Technology, and that institution may eventually do for industrial what the normal schools of the State have done for general instruction.

I have, in closing, to acknowledge the interest shown in the school by very many friends, to whom I feel under great obligation; especially to the Rev. Mr. Chaney, the president of the Industrial Association, and to Mr. Henry S. Grew, its untiring treasurer; to Dr. J. G. Blake, who spoke words of encouragement and advice to the boys in the midst of their work; to Mr. Bachelder, the faithful teacher of the class; and to many others who gave their encouragement and support by visiting the school again and again.

JAMES A. PAGE.

"A."—Topics of the Industrial Class of 1882.

Lesson I.—(1) Striking square blows; (2) nailing, first process; (3) nail and setting nail; (4) nailing on line; (5) nailing flush; (6) blind nailing.

Lesson II.—(1) Toenailing; (2) straightening small piece of pine; (3) planing surface of small piece of pine; (4) planing surface of large piece of pine.

Lesson III.—(1) Joint and square the edge of the board; (2) remove the jointer's iron, and readjust it; (3) learn to use the gauge; (4) learn to use the splitting saw; (5) learn to use the rule and pencil in drawing parallel lines.

Lesson IV.—(1) Learn to use the chalk and line; (2) learn to use the try square with pencil and knife.

Lesson V.—(1) Learn to use the cutting-off saw; (2) remove the jointer's iron; (3) sharpen the plane iron on the oil stone.

Lesson VI.—(1) Learn to use the cutting-off saw with bench hooks; (2) learn to use the block plane; (3) learn to cut a chamfer with a chisel.

Lesson VII.—(1) To cut a chamfer with a plane; (2) to learn to use the bit and bit brace.

Lesson VIII.—(1) To plane a piece to an even thickness and width; (2) to make several pieces of the same length and width; (3) to make one piece of a certain length and width.

Lesson IX.—(1) To nail together several pieces, work out the same, making a box with three apartments; (2) to plane a piece of an even thickness, one end to be wider than the other; (3) to make a tenon.

Lesson X.—(1) Paring with chisel; (2) cutting chamfer with chisel and plane; (3) to make a piece having eight sides or corners.

Lesson XI.—(1) Marking and boring; (2) to reduce each end of the eight-cornered square pieces to fit a $\frac{1}{2}$ hole; (3) to make a mortise.

Lesson XII.—(1) To cut a square block to a described shape; (2) to chamfer the same; (3) to sand-paper the several pieces.

Lesson XIII.—(1) Sand-papering; (2) fitting together the different pieces to make good joints; (3) to put together the different pieces with glue.

Lesson XIV.—(1) To make a box for the oil stone, to be made of two pieces of wood; (2) to halve together two pieces.

Lesson XV.—(1) To make an open mortise and tenon; (2) gluing.

Lesson XVI.—(1) Make a double open mortise and tenon; (2) sand-papering; (3) to plane and square.

Lesson XVII.—(1) To make a tenon (review); (2) to make a mortise; (3) to fit them together; (4) to plane and square.

Lesson XVIII.—(1) Planing and squaring; (2) marking; (3) making tenon (review); (4) mortise to be made (review); (5) to fasten mortise and tenon with draw bore.

"B."—Statement of cost of industrial school held in the Dwight School-House, Boston, January to May, 1882.

Thirty-five lessons, of two hours each, to two classes of 18 each (36 boys, each two hours' lesson per week):

Instructor	\$175 00
Stock: boards and material to work up	20 75

Sundries		\$21 43
Two new benches and labor of starting the school	\$146 64	
Estimated cost of one old bench	50 00	
		196 64
Purchase of new tools	120 48	
Estimated cost of old tools on hand when school was opened	161 90	
		282 38
Janitor of Dwight School		15 75
Total		711 95

HENRY S. GREW,

Treasurer Boston Industrial School Association.

JUNE 1, 1882.

The following communication addressed to the members of the Department of Superintendence by Charles G. Leland, esq., in reference to industrial education in Philadelphia, and containing information supplemental to the Circular of Information of the Bureau of Education, No. 4, 1882, was read:

Regretting that I cannot be present at the teachers' convention, I take the liberty of making by letter a few remarks on industrial art as a branch of education in schools and on the success of the experiment as conducted in Philadelphia.

I must premise that the system of which I speak is different from that pursued by the industrial schools. Properly speaking it occupies the time between the Kindergarten and the industrial school. The latter is specially adapted to boys and to technological or mechanical studies. A high authority in such schools has declared that their instruction was not suited to even boys of less than 14 years of age. This is nothing to the discredit of the schools. A university is not an infant school. Again, the industrial school requires a building and a fortune to establish it. It can only be carried on in a city. The Philadelphia system of industrial art teaching attempts, first, to find out what kinds of manual labor are really adapted to all boys and girls whatever, especially to those under 14 years of age, and, secondly, whether it be possible to introduce some method of teaching them in all schools, in families, and to individuals.

Extensive travel and earnest study of this subject during many years taught me that, while children cannot learn mechanical trades without detriment to mental studies or health, they can easily acquire the minor or decorative arts, including that of decorative design, which is the basis of them all. I have never found in any country that girls or weak or very young boys could with "humanity" be set at shoemaking, weaving, or factory work; but they can all learn outline design and modelling in clay in a few weeks or months, and this to a degree that would astonish even an artist who did not know of what children are capable. They can also carve wood, embroider, work in leather, and emboss sheet brass. That all of this can be well done by pupils only ten years of age is being shown to all who choose to visit my Philadelphia school.

It has been strongly urged against this system that it teaches only art and "fancy work," that it is therefore useless, and above all that what *boys* want is a good practical education by which they may make a living. Now this is very true. Boys *do* need a [practical education. But to teach an average girl or boy of ten or eleven or even twelve years a *trade* is impracticable and visionary. The practical men had the experiment all to themselves in their own way for many years in Pennsylvania, as in other places, long before they were troubled with visions of art, but they did not succeed with the little ones. If it had been possible this whole world of ours would have become like many of the factories of New England at the present day, a hell of hard labor for infants of eight and even six years of age. But in India and China, where human life is so cheap, although children are made profitable at art work, they cannot be profitably employed at *trades*.

I have conducted this experiment without making a cent by it, for the purpose of testing human capacity. I have learned by it that, as the flower prepares the fruit, art work in children is a proper preparation for more practical callings. Outline design and modelling qualify children to become useful in all factories where any kind of casting or shaping anything to graceful forms is required. Easy embroidery leads little girls to the far more difficult art of good plain sewing. Wood carving naturally includes the elementary work of carpenters and joiners. Sheet brass embossing, little known as yet and first made known to amateurs both in England and in this country by my manual on the subject, calls forth or develops both the power of design and of mechanical execution to a really remarkable degree. A more important subject, to which I have paid particular attention, is the fact that the study of design and artistic hand work develops in all children intellectual powers of every kind. Given two boys of equal mental power, and let one study the three R's alone, while the other at the same time learns to design and model, and it will be found at the end of, say, two years that the latter will in all respects be by far the cleverer of the two. And it could not be otherwise. When the curiosity and interest of a boy are awakened in art he begins to observe the design in every shop window, in every piece of furniture, in every wall paper. He has entered a new world. In a few weeks the boy can tell you if a lace pattern or a sofa cover is correctly designed (I am sorry to say that in most cases he can tell you that it is *not*), and give reasons for it. Is not this intellectual development? Is it not a practical preparation for a great deal of business? Would it spoil a boy for selling lace, dry goods, wall papers, or furniture? Would he know less about metal work? Would not, on the contrary, the knowing how to design patterns be through life of real use to him in manufacturing or selling almost any kind of fabrics?

I have no pupils who receive from me and my assistants more than seventy hours of instruction during the year. In this time they learn to design fairly well, and with design learn one or two other minor arts.

That this is actually done is proved by the results. Those who will may visit the school, see the pupils at work, and examine the results. Very recently, since I have been able to engage teachers for wood carving and sheet brass embossing, there has been a great improvement in the work.

If I am asked what boys and girls can learn while attending school and without adding to the burden of the crowded course of studies, I reply, outline design according to a very simple elementary method founded by myself on principles long known to such teachers as Owen Jones, and that when this is learned there is very little trouble experienced in wood carving, modelling brass, embroidery, sheet leather work, setting mosaics, working in papier mâché or any other plastic substance. As regards finding *time* for this, there is not a school child in Philadelphia who would not gladly keep up his or her average in other studies to be allowed to come to the Public Industrial Art School.

I consider it as proved from my own observation that design and art work stimulate quickness of perception and awaken interest in all culture. If there are any present who have not investigated the subject, I commend to them the perusal of the pamphlet on Industrial Art in Schools, published as Circular No. 4, 1882, by the Bureau of Education, Washington, under authority of the Commissioner, General John Eaton, who is familiar with the school and knows what the pupils have done. I must in this connection express my regret that I was unable to have made betimes certain specimens of our art work for exhibition at this meeting.

Of this pamphlet I may be allowed to state that it attempts to set forth clearly and practically how any person whatever may learn the principles of decorative design with the aid of an elementary manual, and that while thus learning one may also teach them to a class. When this is done any of the minor arts presents no difficulty. The interest which the pamphlet has awakened in every corner of the Union is shown by the great number of letters I have received from persons interested in education informing me that they intend to test the Philadelphia system in schools or families.

What I have ventured to characterize as the Philadelphia system is the theory that decorative art work is better suited than mechanical work for boys and girls under 14 years of age, but that the artistic shall be so taught as to lead on to the mechanical or to technology. This art work is to be taught according to a simplified system of design, in which free hand drawing from the shoulder is combined with the most mechanical aids and appliances. In this system original design is taught from the first lesson. It is in full operation and has been perfectly tested, not only in the Public Industrial Art School, but also in the Ladies' Art Club of Philadelphia, of which I am president. In the school I have 150 pupils, soon to be increased to 300; in the club I have 200 grown-up

scholars. The same system of minor instruction is also pursued in both institutions.

I cannot conclude this brief communication without expressing my gratification at observing how much is being done for education at present—wisely, efficiently, and nobly—without much appreciation or aid from either the public or its exponent, the press. Twenty columns of politics, half of them the politics of the slums and grogeries, or little better, may be found in many newspapers to one on education. It is in the hands of the teachers that the souls, the intellectual lives of all the coming generation, are placed. The teacher should be the highest, the most honored in the land. He was actually so in early days, when the priest and teacher were one. But there is a time coming, and that soon—I put the prophecy on record—when education will enter into our national politics, and when candidates shall be measured, not by the blind and brutal tests of mere faction, but by their views as to how to advance culture, to promote honesty, to train the young, and to keep training and teaching man at every age. The best patriot is the man who will do most to bring this about.

In the discussion which followed the reading of these reports, Mr. MARBLE said :

I wish to make a remark upon a certain phrase in this excellent paper from Mr. Leland, where evidently the author's rhetoric ran away with his logic or truthfulness. He speaks of New England factories as hells of hard work and labor for children six or eight years of age. Now, I mistrust that the latest information which the writer has may have been obtained from some inaugural address where education may have been mixed up with politics. I would call attention to the law which forbids the employment of any children under the age of ten years. Furthermore, I wish to say that I cannot see why the teaching of industrial drawing should be claimed as the "Philadelphia system," when it has been practised for about a dozen years in many cities, and in substantially the same way.

Dr. WARREN thought that the law might sometimes be broken in reference to the employment of children under ten. He supposed Mr. Leland meant by "Philadelphia system" a combination of various things which others have taught singly.

Dr. TAPPAN wished to inquire as to what branches should precede instruction in decorative art and mechanics.

Mr. RICHARDS thought the writers of the reports read had a correct idea as to what should precede industrial training. Decorative training, he said, should begin with the child as he begins his alphabet and should be continued until he is fitted for some specific employment in life.

He said: It is not a necessity that the child should be trained to a trade in school, and whether I would carry it as far as they do in the Boston schools, I am seriously in doubt. I would, however, have arrangements

so made that every child should understand the language of the arts of common life. I believe the time is coming when there will be an industrial department in every well organized system of public schools. The employment of the intellectual training should alternate with the physical training. I would not train a child to become a carpenter or shoemaker, but I would make him familiar with the language of these employments.

Mr. MAYO declared that all he had ever heard in regard to industrial training had been in connection with city schools. The experiment in Boston cost \$20 for each scholar. Now, can any gentleman tell us of any experiment that amounts to anything that has ever been tried in the ordinary country district school? Is this thing practicable?

Mr. MARBLE replied that this question was like that asked by the colored man, who, when told that God made man in his own image and stood him up against the fence to dry, inquired, "Who made that fence?" This question overthrows the whole system of industrial education. Mr. Marble expressed himself as anxiously looking for light on industrial training. He deprecated the idea that the schools are responsible for the after life of the pupils. The parents ought to bear some of the responsibility.

Mr. PICKETT thought that education meant the harmonious development of head and heart and hand. It is impracticable to carry out the work of industrial education, even in city schools; in country schools it is entirely impossible. The school, in his opinion, is assuming too much; it is taking too large a share of the responsibility of the parents.

Mr. RICHARDS understood that it was the part of the school to do what could not be done by the parents. A revolution of normal schools is what is needed.

Mr. JONES stated that the Pennsylvania Railroad Company in hiring a boy wished to know whether he was a good *mechanic*. The railroad company understands its business; the world needs *mechanics*, not mere workmen.

THE EDUCATIONAL LESSONS OF THE CENSUS.

WM. T. HARRIS, LL. D., of Concord, Mass., then read the following paper:

It was my task on a former occasion to lay before this honored association of school superintendents some suggestions as to the educational uses of the census, and also the need of some changes in the schedules of the existing census tables. For the purpose of studying political and national affairs we found that the items regarding race, nativity, military age, voting age, and total population were most important. For the purpose of studying the social condition of the people we had the items of wealth and pauperism, sex and ages by nationalities, occupations, deaths, diseases, public indebtedness, crops, machines, produc-

tions, months of birth of the population, also items relating to the insane, deaf, blind, and other unfortunates.

For the study of education we had the items of schools and teachers, illiteracy, pupils, libraries, newspapers and periodicals, churches, the number of children of school age and their enrolment and actual attendance on the schools. The immense improvement in the methods of preparing the national census for 1870 led us to hope that the same enlightened supervision after ten years of experience would produce even better results, if the recommendations and arrangements of the director of the census were seconded and supported by Congress.

In so far as the results of this new census for 1880 have been given to the public, our anticipations have been fully realized. It is only to be regretted that an unwise reduction of the corps of laborers engaged in tabulating the results of this census has kept back from the people for so long a period the full use of the results of this most reliable and minute of all our national censuses.

It is unnecessary to speak at length of the importance of self knowledge on the part of the individual or on the part of society or the state. It is evident that the wise direction of the state depends on a statesmanship that possesses accurate knowledge of the social condition of its people and understands the measures necessary to "promote the general prosperity and secure the blessings of freedom."

Social reform, too, is conditioned by accurate knowledge of the statistics of production and consumption, or of uses and abuses, evils and benefits, that may be itemized in the economy of the community.

From our point of view as educators, nearly every item in the census has a significance because acting or reacting on the people as an educational influence.

Let us look for one moment at the most general item, that of the aggregate population of the country—fifty millions and more. Ten years previous it had been less than forty millions and twenty years previous it had been about thirty millions.

We all know that there is a subtle and unobserved educational influence proceeding from the consciousness of nationality. To belong to a weak and despised nation is to submit to a perpetual training in humility and loss of self respect. A great blight settles down on the character of the individual like a foul, mephitic vapor, and prevents healthy growth. It was great to be a Roman citizen in the times of the Cæsars. It meant that the individual walked about clothed with an invisible garment of protection. The might of the greatest nation, the conqueror of the world, shielded its humblest citizen.

In modern times what a well-spring of character to the man is the consciousness that he is an Englishman. Eight hundred years of victorious national growth strengthen the backbone of each Briton. To belong to the nation whose flag is saluted by a perpetual morning sun

around the world is an education in self respect, manliness, honor, virtue, and productive activity, hardly to be estimated.

Up to 1860 the United States had not reached the standard of a first class power among nations. Each of the "five great powers" in Europe was larger. Our civil war came just then, and it seemed to all Europe, to our friends as well as our enemies, that our doom had come and that no constitution like our own could survive civil war. Before we had come to be respected for our national might, we were to be divided and rendered less and less formidable.

When, in 1870, we reached thirty-eight millions of people, after emerging from a decade one-half of which was occupied with destructive civil war, burdened with an enormous debt and still more by the uncertainty of the problem of reconstruction, our aspect was still too problematic to secure for us a recognition among the statesmen and historians in Europe. As a nation we are affected by foreign opinion perhaps less than other countries because of our distance and because of our consciousness of having a special national function and destiny different from those of European states. But the recognition that has begun to be accorded us by the nations abroad will awaken a new regard for foreign opinion and prove a great educative influence on us through the increased intercommunication by travellers, by commerce, and especially by literature, which describes our national manners as seen from the point of view of England, or France, or Germany.

In a peculiar sense this is the age of the newspaper, and every morning each man and woman living in a civilized community is supposed to take a bird's-eye view of his whole country, and, more than this, of the whole world that is reached by the telegraph. The nations that are far down in the scale of progressive humanity are coming to the gaze of the civilized world as a totality. The most wonderful thing is that they are also coming to feel the influence of public opinion.

The veil of distance has been lifted and each people finds itself playing its part on the open stage before the world as spectator. It cannot do what it will, but it must do what alone will be permitted by the opinion of the world that looks on.

This is national education in the largest sense, for it is the education of whole nations of people by whole nations of people.

In this sense the American people are entering upon an era of national education, in which the decennial census forms a very important agent.

With the growth to fifty millions the United States for the first time rises distinctly above the national horizon as a great world power. The rate of increase will give sixty-five to seventy millions in 1890 and ninety to one hundred millions in 1900. We cannot easily realize the meaning of these census figures. Their chief significance lies in the new career that opens up to our people as a world power instead of a local power limited to this hemisphere. Our most adventurous Fourth of July

orators have not been able to paint for us the national feeling that will be developed through our recognition in Europe. It is the English thinkers who have first seen the coming influence of the United States and of other English speaking peoples on this planet.

Startled by the phenomena of the decade of 1860-1870 they have come to study America seriously and more seriously. They have seen a gigantic war lasting nearly five years in a republic where the central power seemed a shadow and the local power everything; after an unparalleled display of centralized strength, the restoration of local self government complete; spurious reconstruction followed by genuine reconstruction; a new South rising out of the old, not like some fabulous phoenix, but with the more real agencies of the steam engine, the railroad, the telegraph, and the powers of productive industry, and fortifying its new social position by means of the school, making greater efforts than any country ever made before in this matter of schools. The European spectator sees an enormous debt funded and refunded and constantly decreasing, not by repudiation but by constant payment in specie. He sees the volume of paper money contracted and the resumption of specie payments. He sees the wonderful presidential settlement of "eight to seven," and the coolness and patience of the American people under established legal forms. Then he looks again at an increase of twelve millions in ten years, reaching an aggregate of fifty millions of people, the next nation to Russia in point of population, and all these people speaking English and living under a modified British constitution that realizes local self government here far more perfectly than it is realized in England itself.

No wonder that the far-seeing thinkers of Great Britain are looking forward and casting up accounts, anticipating our census and calling the attention of their young men representing the aristocracy and wealth of the island to the meaning of the growth of British colonization in America. Napoleon's career at the beginning of the century and Bismarck's towards the close of it, says a university professor, will seem very insignificant to the historian who looks back from the next century and calls attention to the quiet, unnoticed growth of the United States in the first half of this.

He sees that our nation may then have three hundred millions of people, as many as all Europe, perhaps. We have a government in the form of local self government that allows the individual to manage all affairs that concern himself alone, but insists that he shall constitute with his neighbors a joint directorship over affairs that are common to them. His will must submit to the general will in all matters of common weal. The numerous steps and stages—the school district, the township, the county, the State, the nation—ascend from the individual to the political summit.

This means freedom to all and to each. Those who are really concerned in the business manage it, whether it be single individuals or

small communities or large communities. Hence, while Europe sees American influence rising above the horizon as a world power, this does not forebode evil, as the increase of Russian power portends an invasion of her neighbors by the Cossack. Even England and France might become parts of the United States and preserve all control of what concerns only themselves. And as for common interests between nations, do we not see and do they not see that the day will soon come when such interests must and will be managed by international commissions?

This is the interest of our census in its most obvious feature: its interest first to us and secondly to the world and thirdly to us again because it interests the world. It is the education it brings to each and every American who lives in the consciousness of this mighty destiny before the whole world. It is a training in dignity, self control, humanity, earnestness, simplicity. You could tell a Roman of the empire by this; so a Briton of the present; so a Spaniard of the time of Charles V; so a Frenchman of the time of Napoleon; so a Prussian of the Bismarck régime.

Three-fourths of a million immigrants come here annually. A better educated class come here than formerly. The facts of our census arouse the attention of the more intelligent inhabitants of Europe and induce them to try their fortune with us.

Turning from these considerations of the educational influence of the growth of the nation as a nation, let us contemplate for a moment the side of civil society, and recount to ourselves the meaning of the enormous sum of the productive industry of the country. The production of wealth appears to be the absorbing occupation of our people. Comparatively few seek the fields of scholarship or the fine arts or statesmanship. The growth of great corporations demands the most and the best of the great directive power that is developed here. Let us study for a moment this creation of property and the relation of its acquirement and preservation to education and the higher spiritual life of man.

It is clear that all the bodily wants of man, food, clothing, and shelter, depending as they do upon the ownership of property for their satisfaction, are through this means elevated and spiritualized, because property is a result of the institution of society. For property is not the creation of the individual; mere possession does not suffice; it is the recognition of society that makes *things* become *property*. Civil society establishes rights of property and division of labor. Through this each man is required to labor for his fellow men and to depend upon their labor to supply him the articles of food, clothing, and shelter which his own labor does not produce. His bodily wants are no longer mere immediate impulses, as animal wants, but they are converted into the instruments of realizing his spiritual or reflected being; he is forced by hunger and cold to combine with his fellow men and to form a community in which he is to respect their recognition far more than his own animal impulses and desires.

Thus, too, the institution of the family lifts man above mere sexual passion, and makes him in that respect a reflected being, a rational being.

Civil society is organized for the realization of man's existence as a property owner, so that he shall be a universal or rational essence, and not a mere individual animal, dependent on his mere locality and the season of the year and his unaided might for his physical life. For when man becomes a property owner and enters into this social combination of productive industry he does not lose himself but rather finds himself. He adds to himself the gigantic system of the industry of the whole world just as really as if he were absolute monarch over it and all mankind stood ready to fetch and carry at his bidding. Indeed the reality is more wonderful than the story as told in the Arabian Nights. The conception of Aladdin and his wonderful lamp, of Houssain and his magic carpet, and of Ali with his magic tube was the first dream of the wonderful organization of mankind into civil society. By its potency the humblest individual lives in communication with all the rest of mankind. The products of their labor are coming to him in a constantly flowing stream from the ends of the earth; he is in constant communication with all mankind and hears of their deeds, their joys, and their sorrows, and cannot but profit by this communication and grow wiser by what he reads in his daily newspaper. The institution of private property made transferable and exchangeable by means of the device called money makes each man a central focus of dominion:

For him the winds do blow,
The earth doth rest, heaven move, and fountains flow.
Nothing he sees but means his good,
As his delight or as his treasure;
The whole is either his cupboard of food
Or cabinet of pleasure.

Each man, by the simple process of industry and becoming a producer, puts into the market and storehouse of productive industry his little mite of a day's labor and thus gains the right to draw out from that market a portion of each of the products that all the countries of the world have contributed to it.

Note, especially, that the contribution of each bears no proportion to the blessing that he receives in return. As Aladdin had to rub his lamp in order to call up its genius, the slave of the lamp, so, too, the lamp of human industry must be kept bright by the toil of the individual, and then all is provided.

The service performed by the combined labors of all men is a service infinitely more considerate and thoughtful than the service of the slave of the lamp or the slave of the ring, in the Arabian tale. That service did only what was desired and commanded by the individual Aladdin; but the service of the industry of the world does ten thousand things

for his true good and his possible wants that the individual cannot think of or understand.

The individual needs to be educated in order to learn to perceive what servants wait on him and what priceless gifts stand ready for his hand.

This is the miracle, that the whole of society is the slave of the ring that serves each individual. For is not social combination in a world of productive industry and commerce a gigantic ring of human beings? And does not each single individual in that ring find that he is enriched by all the labors of all the human beings in that ring, so far as those labors are labors of production and exchange?

Through civil society each individual commands by his own feeble efforts the resources of the entire globe. The organization of civil society is so perfect that every day's labor of the wheat grower affects the price of wheat all over the world. Every day's labor in the mills of Lowell or Lawrence affects the price of cotton cloth in Australia. The day laborer in the streets of this city commands with his meagre wages to that extent a share in the coffee of the distant Indies, the sugar of Louisiana, the tea of China, the drugs of South America, the fruits and grains, the manufactures from all sections of the country.

The fact that conscious intelligence—directive power—controls the property of the world is too obvious to need restatement. I call property a "reflected being" because it exists only through the recognition of society. *Things* exist, it is true, without such recognition, but things do not become *property* until society confirms the right of ownership. Such recognition is always an act of directive intelligence. There are no rights of property where the possession and use of things depend on the will of the strongest individual. Rights of property arise only with the growth of insight into the supremacy of the social whole as organized in the state. Man must see that society is stronger than the individual and learn to obey the will of this invisible body and to renounce the temptation to substitute his might for right before property can really come to exist in a community. The laws that create and preserve property state the nature or constitution of the bonds that hold society together. They state the principles on which man shall contribute to his fellow men and be permitted to share in their labors. Such distinctions as the laws of property set up contravene the immediate desires and wishes of the individual and demand of him the constant effort of self control. He must acquire a reflected will, that is to say, a will that is bent back upon itself in order to regulate its own action according to universal principles called "laws."

A thing is an immediate existence; but a piece of property is a thing that has become subject to my will through the recognition of society. Society acknowledges and respects the sway of my will over those things that constitute my property. Hence property is not a thing nor a direct product of my will, but the product of my will only as reflected

in the will of the social whole existing in the form of a political body, the state.

It is clear enough that the rights of property cannot exist except in a community whose directive power has adopted a code of laws and legal usages defining such rights of property, and only where there exists a class of the community specially educated to interpret the application of those laws to particular instances and enforce their application on the part of the state or guide the individual by professional legal advice. It demands, too, the education of the law making power. Under all there must be the generally diffused insight of the people into the necessity of the support of the power of the social whole against the might of particular individuals or classes of individuals.

This insight into the necessity of the political organization of society is an insight that belongs to what I call "directive intelligence," because it can be realized only through the control and direction of the mere individual will, requiring it to renounce its inclinations, wishes, and whims so far as they are not compatible with the existence of social combination. The rights of property can be conserved only through an educated class.

The higher kinds of property, such as franchises, imply a high intelligence in the community. The property that consists in franchises requires a more thoroughly educated community, because such rights rest on more subtle distinctions than the rights to chattels and real estate. The individual must be so disciplined in mind that he can see readily the connection of his own well-being with the existence of such franchises.

Again, the possibility of possession of property by all in this country adds new validity to it here and makes it more valuable. That you can alienate your real estate, makes it property in a complete sense. If it is entailed it is only part property. The free possession of property, without feudal liens and tenures (the dead hands of the past owners still clutching the symbol of their reflected being), comes to existence only when a government of all the people, for all the people, and by all the people prevails, and when it is rendered possible through universal education. Who would own real estate in Turkey? Who would accept a Russian estate on condition that he live on it and assume its responsibilities? No one of us, I think. The quality of property—its intrinsic value—depends upon the quality of the community who recognize it. The status of the reflected being is the status of those who reflect it. Property in a refined and cultivated community is raised to a high potency of value; in a barbarous community it is not worth the risks incidental to its possession. In proportion as a man is educated he sees the substantial character of reflected existence, and this perception creates continually new subjects of property, founded on new recognition: bodiless possessions, "incorporeal hereditaments," that receive their substance from conventional recognition.

The growth of corporations is the wonder of this generation. They perform what the individual never could do for himself, and yet needs to have done in order that he may become freed from the thralldom of nature. The individual could not afford to build an aqueduct to obtain pure water from the distant hills, or establish gas works, or own a railroad or a telegraph or express system. Corporations furnish him all these things. If corporations abuse their power sometimes, this is because society has not yet learned where to place legal restrictions upon them and is another illustration of the necessity of education in the community.

This general relation of education to wealth production brings us close to the question of so-called industrial schools: manual training schools, school shops, and the like. It is clear enough that such schools are in demand and have a legitimate function to perform. But it is not so clear that they should be incorporated with common school education or in any way encroach on the time-honored disciplines of the common school, i. e., reading, writing, arithmetic, geography, grammar, &c., or indeed take the place of anything that can be called general instruction.

Let us see what the census teaches us in regard to the proportions of the population engaged in the particular arts and trades. We shall then see whether such industrial instruction can be made general enough to answer the future needs of any considerable fraction of the pupils in school.

If each of the five hundred arts, trades, or occupations in the community required a special school for the preparation of its laborers and had no manual and technical disciplines in common with the other occupations it is clear enough that such special industrial education could not be introduced into the common schools.

I have selected for this investigation nine cities differing greatly in respect of manufactures, commerce, and professional and personal service. They are New York, Philadelphia, Brooklyn, Chicago, Boston, St. Louis, Cincinnati, New Orleans, and Baltimore.

It is evident that the inhabitants of cities will present us a larger proportion of laborers at the arts and trades than the country population. In the cities, if anywhere, it would be desirable to establish industrial education in the common schools.

According to the census of this country for 1870—I use the statistics of 1870 because the returns are complete—there were 350,556 persons above the age of ten years in the city of New York who were reported as laboring in some occupation. Of these 86,171 are reported as females. Of the entire number there were 1,401 engaged in agriculture and 115,259 in professional and personal services, the last being one-third. Personal services included 49,440 as domestic servants, 28,451 as mere laborers, 4,832 as in hotels and restaurants, 5,604 in laundries, 1,278 in livery stables, 1,535 in boarding houses, 2,549 barbers and hair-dressers, 42 billiard saloon keepers—93,737 in all. Professional services included

715 clergymen, 316 journalists, 1,283 lawyers, 4,222 in Government offices, 1,741 physicians and surgeons, 669 soldiers, 3,511 teachers—12,457 in all. There were 9,071 others engaged in personal or professional services not specifically designated.

When we consider the various occupations named above, under which one-third of all the laboring population of New York are classified, we see that there could be no special training school added to the common schools that would fit each pupil for his particular vocation, if one of these.

By far the largest number in any single occupation are classed as domestic servants, and these form one-seventh part of the entire number of laborers.

The general discipline of the hand and eye that is given in the study of free hand drawing in our common schools would be of great service to nine-tenths of these laborers. Still more valuable would be to all the training of the Kindergarten occupations at the early age when the muscles are not yet formed and fixed. The one occupation of moulding from clay would be useful to all cooks and to all who have to do with giving shape to plastic material.

The census reported 88,611 as engaged in trade and transportation, one-fourth of all the laborers. Of these, 23,872 were traders and dealers, 4,744 were hucksters, pedlers, &c., 27,590 were clerks, salesmen, &c., 3,355 were bankers, brokers, insurance men, &c.—59,561 total in trade. Of those in transportation, 3,844 were engaged by railroads and express companies, 298 by telegraph companies, 4,463 were sailors, &c., 9,813 draymen, teamsters, &c.—18,418 in all. Of those engaged in trade and transportation, 10,632 were not more specifically classified.

Here, too, we see that the general industrial education fitted for all is a knowledge of arithmetic, reading, and writing, and not some species of manual skill.

The number engaged in professional and personal services, added to those engaged in trade and transportation, gives us nearly three-fifths of the whole industrial population of New York. The number engaged in manufacturing and the arts is reported at 145,285, or the remaining two-fifths of the industrial population. Of these, 3,533 were blacksmiths, 2,296 were iron and steel workers, 3,787 were machinists, 1,562 were tanners. Here we see 11,178 whose occupations have something in common, namely, the working with iron and steel or hardware in some shape. The use of the hammer and the file would be useful to all these; but they form only three in one hundred of the entire industrial population. In a school of one thousand they would make a class of thirty-two pupils. If more than thirty-two pupils were attracted into this class from a school of a thousand, it would be likely to produce discontented laborers, who were not needed because their trade was overstocked with workmen.

Taking another general class of manufacturing we find 10,427 carpen-

ters, 5,071 cabinet makers, 686 carriage makers, 1,606 coopers—17,790 workers in wood. The use of the file would not be specially useful to these. The use of the hammer would be necessary to all, but a very different knack in its use would be required. The use of the hammer on iron and steel would be likely to specially unfit one for the best use of it on wood. But these woodworkers could all learn the use of wood cutting tools: the saw, the adze, the chisel, &c. But a class of only fifty could be formed in a school of one thousand pupils, even if the whole school were destined to some industrial occupation.

Next we find 1,477 cotton and woollen mill operatives, 9,747 milliners, 18,564 tailors, 29,788 who should know something about the manufacture of cloth and most of whom should know how to sew. About 75 in a school of 1,000 would enter a class that should know the specialties of the tailor and milliner. Probably 500 of such a school should know how to sew. We find 6,960 shoemakers, 3,855 bakers, 4,870 butchers, 5,824 painters, 8,018 masons and plasterers. The common element of skill among these trades is a very general one, such as we call discipline of the hand to delicate manipulation and of the eye to accuracy of measurement. Such training is given in the study of freehand drawing and in the so-called "gifts and occupations" of the Kindergarten.

In the other eight cities the proportion of the industrial population engaged in professional and personal services ranges from a little less than one-third, as in Philadelphia, to nearly one-half, as in New Orleans. The population engaged in trade and transportation ranges from less than one-fifth in Philadelphia to more than one-fourth in Chicago. In manufactures, arts, and trades the number ranges from one-fourth in New Orleans to one-half in Philadelphia.

These exhibits show from 30 to 40 per cent. of the population counted as industrial population. The population over ten years of age is about 75 per cent. of the whole population.

These lessons show us how wild are the theories of those who declaim against the present course of study in the common schools and demand the introduction of the arts and trades instead of the general disciplines that are now taught.

To meet the wants of the age, as these reformers understand them, they should ask for the curtailment of the school period and the apprenticeship of children to trades. Such apprenticeship is not likely to be undertaken by the state so long as the present ideas of personal freedom prevail in this country.

That the state may require a general education in science and letters and a training in secular morality is reasonable enough, but it cannot choose the vocation of the citizen for him without attempting more than any state has done since the petty tyrannies of India ceased to exist.

Special industrial schools may be established at the expense of the state, such as are called school shops and polytechnic schools, and doubtless they will do much good.

They will prepare a set of master workmen who will be able not only to direct the labor of the journeymen mechanics, but also teach them the best methods of manipulation. Such superintendent workmen will be doubly valuable to the community: first, securing better work; secondly, educating the workmen.

Within the past twenty-five years great strides have been taken by European governments in establishing systems of public education. It has been seen clearly that unless the laborer were educated the industrial product would be inferior and come to be discriminated against in the markets of the world. Technical education thus began at South Kensington for England, as it had been before established in France and Germany. The foresight of Frederick the Great, backed by the religious dogmas of Luther, secured general education to his people. The weight of the Prussian people in war came to be seen in their Austrian and French campaigns. Since these wars public education has received an enormous impulse. Not merely the industrial success of the people, but national independence itself seems dependent on the general education of the people.

But man will not submit to be educated simply as a director of machines and instrumentalities of industry. He soon aspires to direct himself and be self governed. To be sure there is a long step from the mere hand laborer, the one who turns a crank or carries a hod, the galley slave who works chained to his oar—there is a long step from the mere physical laborer to the director of a machine, to the engineer, to the overseer of a loom, or the manager of a telegraph. The former is all hands; his own brain even is a mere hand governed by the brain of another, who directs him. But when directive power develops so far as to direct and govern machine labor, nay, even when it is so far cultured as to reach the principles of natural science and to be capable of applying these in mechanic inventions, even then it is not at its summit of realization. It will stop at nothing short of the spiritual culture that makes it alike directive and governing in the sphere of mind, the realm of social, moral, and intellectual existence.

It is agreed that this age is one of productive industry. Its active principle is invention, especially mechanic invention. Every day we hear of some new discovery that harnesses a new force of nature and compels it to work for man and assist in providing means of food, clothing, and shelter, or means of intercommunication and the spread of knowledge. Mind, not the body, is the inventive power; the directive power that can manage and use machines to advantage is mental, and not physical skill. The growth of invention is so rapid that the increase of manufacturing power by the aid of machinery is said to double, for all the world, once in seven years. The multiplication of steam engines and the improvement of machines renders this possible. What unintelligent hand labor is there that has any certainty of being in demand ten years hence? More than this, what trade is there that can count

on using, ten years hence, just the kind of technical skill that it requires now?

The history of the present era of industries shows a continual shifting of vocations, no vocation having any long lease of life. The new discovery will make the trade learned to-day, after a long and tedious apprenticeship, useless to-morrow. Any peculiar knack which depends on manual dexterity may be rendered valueless by a new application of machinery. The practical education, therefore, is not an education of the hand to skill, but of the brain to directive intelligence. The educated man can learn to direct a new machine in three weeks, while it requires three years to learn a new manual trade. The hand trained for twenty years at one kind of labor cannot learn a new work requiring different skill, because the muscles have become set and stiffened into one form of action. An uneducated workman will be thrown aside to perish in an almshouse. Only the versatile intelligence is able to meet the demands of the age of productive industry.

We are to find the most practical education for our age, then, in the general education that is and has been furnished in our schools. The branches of the course of study include language studies and studies of nature with a view to fit the pupil for combination with his fellow men and for ability to command the forces of nature. Mathematics gives the individual man control over nature, and the study of reading and writing gives him access to the wisdom of the race and ability to communicate himself to his fellow men and receive their advice. These general studies are, moreover, essential in our day to the preparation of citizens who shall support and defend the established order and not conspire for its overthrow.

All the studies of the common school are conservative in their character, because they all open the windows of the soul and give the mind insight into the substantial character of the institutions of civilization. They all tend to produce the conviction that the well-being of man is best furthered through the very instrumentalities that have been discovered and elaborated by the race, and especially by modern civilization. Reading, writing, arithmetic, geography, history, and grammar all open the soul to light on the question of subduing nature or on the question of the character and destiny of the human mind as revealed in language or social usages or political forms and changes.

The good school, moreover, teaches industry effectually. But its industry is that of directive intelligence. The progress of civilization supplies more and more the machinery to perform menial service and makes it necessary to educate all into directive intelligence. Self-directive intelligence makes for itself avenues of employment. Directive power is the only power that is never wasted.

It is not surprising that our people educated in common schools are versatile and industrious. Indeed it is the most valid criticism that we hear, the general criticism that the American people overwork. Their

ever active intelligence sees too many opportunities in the presence of this half-settled and half-civilized New World, and the consequence is premature old age on account of an unbroken career of toil.

There is too little leisure from the rough work of pioneering to produce finished scholarship. But education, as far as it goes, disciplines the mind and fits it to understand the complicated questions which it meets in a new political experiment. But there is not enough of this general education for the real needs of the age. Every citizen ought to be able to read and write and to know enough geography, grammar, and history to understand the daily newspaper. At least so much as this is essential to the voter in a free republic.

But here we come upon the most unpleasant and unwelcome data that our census furnishes. The census of our country for 1870 said: Of the population over ten years of age, 5,658,144 cannot write; 4,880,271 of these are native born and 777,873 are of foreign birth; 2,789,689 of these illiterates are colored. The total population of the nation over ten years of age was 28,228,945. Hence, 20 per cent. of the population over ten years of age could not write in 1870. In Massachusetts, even, there were 97,742 who could not write, 89,830 of these being of foreign birth and only 7,912 being natives. Eight thousand is a large number for a State like Massachusetts. Twenty-three thousand illiterates were in Boston.

The census of 1880 tells us again that there are 6,239,958 persons unable to write out of a total population of 36,761,607 persons of ten years of age and upwards.

We have permitted universal suffrage, and the Government is made by the majority. If we do not have universal education, we shall all suffer for it; for we are tethered to the lowest stratum of our population and must accept their influence in our politics. Nothing but education will ameliorate it.

The lover of his kind rejoices in the knowledge that here in America we have so organized our society that the welfare of the highest is connected indissolubly with that of the lowest, so that each and all must, in the main, see clearly that he is his brother's keeper and realize the solidarity of the social whole. Each man is what he is, not through himself alone, but by and through the reflection thrown back upon him from the social whole in which he lives and has his being. Under monarchies and despotisms the same fact is also true, but there is such a mirage created by the principle of caste that it cannot be seen clearly except by deep thinkers. Here it is visible, for the common laborer is also a voter and participates in making the laws of a free government.

The critics of our educational system are never done with telling us that its results are to make the rising generation discontented with its lot. As if this were a defect instead of the crowning glory of the system! What place is there in this age for a drone who is void of aspiration? To be like dumb driven cattle—this is not to be permitted

in a Christian civilization. Man is immortal and has an infinite destiny: this is the burden of Christian teaching. In consequence of this, Christian civilization strives towards the heavens; it subdues nature and makes natural forces toil for it and procure food, clothing, and shelter for the body. It continually turns out the drudge from his vocation, and says to him: "I do not want your mere bodily toil at any price; I must have brain labor joined to hand labor. I have machines made of wood and iron that can do such work as the like of you can, and at a far less price than you would call starvation wages. Up, then, and acquire directive intelligence, so that you may manage and direct this machine and other machines, for presently we shall need no more mere hand labor, but require all to be intelligent and directive."

As made in the image of God and as destined for His eternal kingdom, is it possible that any education that schools may give is too high for the position to which a human being is called to occupy in life? In view of the necessity for educated directive power in an age of productive industry in which the superintendence of machines is the chief industrial business, is a general education that gives one insight into nature and insight into the human mind too much? In a representative democracy, in which the laws that govern property and personal rights are made by the representatives elected by all the people, including the humblest citizens of the country, is any education too good for the people?

The American answer to this question is No!

Dr. HENRY RANDALL WAITE, having been called upon to speak, said:

Education is intended to fit men for success, not only as bread winners, but in the fulfilling of the parts assigned them in the economy of society as factors for the accomplishing of whatever in their places as component parts of the social organism their special aptitudes and inclinations best fit them for doing. The address to which we have just listened calls special attention to the truth that in order to succeed in the pursuits and callings of the individual, one of the chief essentials is a knowledge of the relations, one to another, of the facts bearing upon these pursuits and callings. In connection with the lessons deduced from statistics by Dr. Harris, I recall as pertinent the remark recently made to me by one of the most prominent and successful of Boston publishers, that he attributed his success to the efforts made throughout his business career to utilize the laws of nature by making them adjuncts for the accomplishment of his purposes. This successful attempt in the application of sound philosophy to the management of business affairs illustrates the results which may obtain in larger degree if the lessons deducible from facts bearing upon the affairs which concern men in all the important relations of life can be made more generally accessible and shall be more commonly studied. If, as indicated, the chief object which engages or ought to engage the atten-

tion of educators and students alike is the means which will most certainly enable men to grow into whatever place in the social organism they are, all things considered, best fitted to fill, education from its earliest beginnings should include proper attention to whatever will in any way cast light upon the various pathways open to the choice of the youth in our schools. It is the opportunity for the study of facts in their various relations as presented in statistical form which gives to statistics their chief value; and as facts thus collated enable us to arrive at conclusions which are shown to be of the utmost importance as affecting the future interests of the young, such facts may well be regarded as worthy of the most painstaking study. The results of such studies, as presented by Dr. Harris in his summary of some of the lessons taught by the figures of the last census, should therefore be especially welcomed because of their important educational influence. It may be too much to hope, and still we may indulge the expectation, that when the great value of such studies is more fully appreciated opportunities will be in some manner afforded to the youth in our schools for entering upon them. The natural laws which govern human affairs in respect of education will, in the near future, I trust, be as well classified and understood as those which relate to political economy. A study of these laws as applied to the important question of industrial training, which has been engaging our attention this morning, would cast much light upon that subject.

Industrial education seems to me to be merely the amplification and perfection of the system of object teaching. It takes from the latter that which was abstract and theoretical and gives to it, as applied to the useful arts, a practical bearing. When the question of such education is under discussion and we ask what part in it the artistic and decorative shall have as compared with manual labor of a grosser sort, it may be well to inquire as to the proper relations of the triune functions of man, the head, the hand, and the heart (so eloquently referred to by Mr. Pickett), the natural order of sequence in which these exercise their functions, and as to the relation which the various steps in industrial education bear to this sequence. If in the order of nature's laws we find that observation through the eye precedes the knowledge acquired by the sense of touch or hand manipulation, will not this aid us in the orderly arrangement of the various steps to be taken in industrial training? Again, by the careful study of the facts which acquaint us with the natural laws (to ignore or to disregard which will result in the failure of our best efforts), we may, I think, solve the two most important problems connected with this question in its practical bearings: first, under what circumstances industrial education may be profitably employed, and, secondly, circumstances being favorable, how to employ it to the best advantage.

It has been said that the methods contemplated by such a system cannot be made universally applicable. Assuredly, conditions in city

and country, as remarked, are so widely different as to make it evident that the rules applicable in the one case will be applied less easily or not at all in the other. A careful inquiry into these conditions should certainly precede attempts to introduce a system whose usefulness and value may be imperfectly appreciated and greatly underestimated as the result of hasty and unwarranted conclusions on the part of its friends. Statistics, generally regarded as a dry subject, and possessing little interest, in so far as their study can be made plainly contributory to the solution of the important social problems which are more and more engaging the attention of intelligent men, will receive the attention due them; and, as men turn more and more to the study of what we have been accustomed to hear spoken of as "dry figures" because they find that such studies pour floods of light upon the vital problems which chiefly concern them, figures will have a new meaning.

Mr. RICHARDS. I would like to ask Dr. Harris a question. Why is it that only one in fifty of the children that are in the courses of education in our country are in the higher grades?

Dr. HARRIS said in reply:

I believe, of course, that primary instruction may be improved, but I do not attribute the fact that there are so few in the higher grades to the want of good instruction in the lower grades, as Mr. Richards seems to do.

The average attendance on the school is perhaps not more than three years (of ten months each) all told, say thirty months' schooling, on an average, to all our people. The reasons for this are obvious enough. First, there is the poverty of the people, real or imaginary. The parents of the class of manual laborers are content if they give their children the ability to read and write and the mastery of the simplest rules of arithmetic. So much is "a great deal more than *they* received."

Then, secondly, there is the stimulant of opportunity in this country. What country was there ever before that offered such chances to the individual to get wealth? The youth catches the gold fever or the emigration fever, and quits the school for active labor.

It is not quite so bad as it seems, for the youth who can read and will read may become a learned man before old age, through the blessings of cheap books and periodicals, and above all the daily newspaper, which is our greatest popular educator next after the common school. The pupil learns how to read at school, and he graduates from that preparation into the American university: the newspaper and public library.

I find myself unexpectedly bringing my paper into the midst of a debate on industrial education. I would like to say on this point that the great fact that meets the student of modern civil society is the fact of the change of vocations rendered necessary by the invention of machines. No laborer can be very sure that his trade will be good for a livelihood for many years to come. This development of inventive

power is due beyond question to the study of natural science and the increased devotion of specialists to the observation of the phenomena of physical processes. This study of nature, again, if we are to follow up our explanation of the peculiarity of our historic period, must be considered as due to the development of the Christian idea of the world. So long as nature was looked upon as a mere illusory appearance or "maya," as the East Indians called it, there would not arise the conception of the possibility of finding rational laws in it. So, too, the conception of the Greek mind, that nature is the manifestation of individual divinities concealed behind it, would not permit the observer to entertain the thought that nature is a consistent manifestation of reason. But the Greek philosophers broke away from superstition and arrived at the idea of the world as a Cosmos, a world which, as Plato represented, was made by a Creator entirely without envy and moved only by the desire to impart to it all His perfections.

The Christian religion taught that the world was a revelation of God. Accordingly, as soon as the weightier questions of the struggle for existence against the northern and eastern barbarians were settled in its favor, there arose a wonderful passion for the study of nature in one or another form. At first it was the era of geographical discoveries, then the era of separation of the secular from the dominion of the church. In itself this separation of the state from the church is the proclamation that nature shall have validity as a peer to the spiritual whenever it assumes the form of harmony with it. The state has assumed the form of the dispenser of justice, and justice being a divine attribute it harmonizes with the principle of the church, and the state may become independent of it, inasmuch as it has adopted a principle recognized by the church and now no longer needs ecclesiastical supervision. The secular emancipation is brought about by the Christian principle which teaches the divinity of men and places infinite responsibility on the individual.

Science will emancipate man from thralldom to nature through mechanic invention. First, there came the age of simple inventions, clumsy machines being invented to perform the movements that the hand had executed in the previous era of division of labor. The age of machinery is the age of synthesis in place of division. After simple machines come those more complex, combining the operations of many simple machines in one. The more complex the machine the more versatile the intelligence required to direct and control it. But the emancipation of the human being is much the greater for it. The productivity is enormously increased in proportion as the human individual is dispensed with for its direction. Food, clothing, and shelter grow cheaper, and each human being can have more of them in exchange for his day's labor.

There are two consequences resulting from this progressive conquest of nature by the aid of mechanic invention. The first is that more educated general intelligence is demanded in the director of the machine.

The second is that the human being gets more and better food, clothing, and shelter, and more leisure for spiritual development, and consequently his child stays longer in school, for the reason that labor demands intellectual preparation and leisure permits such preparation.

Mr. RICHARDS said that more time was needed to educate youth in those higher branches that give directive power.

Mr. LUCKEY thought that the question why there are so few rich people and so many poor ones might be asked with equal propriety. All would be rich if they could and all would educate their children if that were possible. We do not understand this question of industrial education. The schools are managed by poor directors and controllers. Let the children be properly educated in the rudiments, and those who can take advantage of the high school education will do so. The chairman of a French commission remarked in my hearing that the best reading he had heard in his life was in public schools in America. "But of what use is it? In America you devote four times as many hours to teaching children to express themselves as we do, and of what use is it? Are you educating these children to go upon the stage or become lawyers or preachers? Oral expression is not what you want. You wish to teach children to read in order that they may gain information. If you will take 90 per cent. of the time that you give to expression and teach the pupils the meaning of words they will do better." Now, I have observed that children that come to us from England and Scotland and Ireland and Wales can read books that American children of the same age cannot comprehend.

Mr. HITZ concurred in the views expressed that the directive power should be developed, and Mr. Richards emphasized his previous remarks.

The president announced the following committee on national aid to education: M. A. Newell, State superintendent of public instruction, Maryland, chairman; B. G. Northrop, ex-secretary of the State board of education, Connecticut; Atticus G. Haygood, general agent of the John F. Slater fund, Georgia; N. C. Dougherty, superintendent of schools, Peoria, Ill.; J. H. Smart, ex-State superintendent of public instruction, Indiana; Jos. Desha Pickett, State superintendent of public instruction, Kentucky; Joseph White, ex-secretary of the State board of education, Massachusetts; W. T. Harris, St. Louis, Mo.; Andrew J. Rickoff, superintendent of schools, Yonkers, N. Y.; Eli T. Tappan, president of Kenyon College, Gambier, Ohio; Geo. J. Luckey, superintendent of schools, Pittsburgh, Pa.; C. C. Painter, Nashville, Tenn.; S. C. Armstrong, principal of the Normal and Agricultural Institute, Hampton, Va.; B. L. Butcher, State superintendent of free schools, West Virginia; B. G. Lovejoy, member of school board, Washington, D. C.

The department then adjourned to meet at 8 P. M.

THIRD SESSION—WEDNESDAY EVENING.

WASHINGTON, *February 21, 1883.*

The third session of the Department was held in the High School Hall at 8 P. M.

The president introduced ATTICUS G. HAYGOOD, D. D., president of Emory College, Oxford, Ga., and general agent of the John F. Slater fund, who delivered the following address :

IF UNIVERSAL SUFFRAGE, THEN UNIVERSAL EDUCATION.

The records in the Bureau of Education show that in the recent slave States of the Union the total school population in 1881 was 5,814,261. Of these 3,973,676 were white and 1,840,585 were colored children. The school age in these States averages from six to nineteen years. Of the whole number the total school enrolment was 3,034,896. Of this number there were of white children 2,232,337 ; of colored, 802,559. Of the total school population of 5,814,261, 2,779,365 were not enrolled, that is, they were not at school. The whites not enrolled numbered 1,741,339 ; the colored, 1,038,026 ; that is, nearly half the white population of school age and more than half the colored were not enrolled. Of the entire school population 52 per cent. were enrolled, 48 per cent. were not enrolled ; of the whites a fraction over 56 per cent. were enrolled, of the colored a fraction over 47 per cent. In this matter the whites are only a little better off than the negroes.

Upon the schooling of the 3,034,896 enrolled in 1881, these States expended the sum of \$13,359,784, that is, \$4.40 per capita. Of these States all but two or three distribute the school funds without distinction of races. In these States the public school term does not average four months ; in most of the cotton States the average term is three months. When we say that 3,034,896 children were enrolled in 1881 in the late slave States, this does not mean that so many were at school three months. It is doubtful if two-thirds of the whole number were at school during the full term.

Here, for convenience in remembering them, let us come to round numbers for a moment. Allowing for the ordinary increase of population since 1881, it is safe to say the school population of the South is now 6,000,000. Of these 4,000,000 are white and 2,000,000 are colored. Of the 6,000,000 about one-half are enrolled and at school.

What is the case with adults in these States ? We may just here consider only the case of the voters, there being, however, more illiterate women than men. The total number of men of voting age in these States, by the late census, is shown to be 4,154,125. Of these, 1,354,974 could neither read nor write, that is, nearly one-third of the whole number of voters are illiterate. Of the white vote 30 per cent. are illiterate ;

of the colored, 70 per cent. In one of these States the illiterate vote is the majority of the whole number.

This is bad enough, but this is far from being the worst of this sad case. The worst is this: The illiterate vote in these States is increasing. From 1870 to 1880 the increase of this army of ignorant voters in the South amounted to 187,671. Leaving out Delaware, the illiterate vote increased in every Southern State. In this downward progress the two races keep well together. The increase of the illiterate white vote was 93,279; of the illiterate negro vote, 94,392. The whites being in the majority, take the South as a whole, the increase of the illiterate vote is relatively greater among the negroes.

Let us give details as to a few of these States. In Georgia the illiterate white voters in 1870 were 21,899; in 1880, 28,571; the illiterate negro voters in Georgia in 1870 were 100,551; in 1880, 116,516. The illiterate white voters in Kentucky in 1870 were 43,826; in 1880, 54,956; the illiterate negro voters in Kentucky in 1870 were 37,889; in 1880, 43,177. In Tennessee, in 1870, the illiterate white voters were 37,713; in 1880, 46,948; the illiterate negro voters in Tennessee in 1870 were 55,938; in 1880, 58,601. In Texas, in 1870, the illiterate white voters were 17,505; in 1880, 33,085; the illiterate negro voters in Texas in 1870 were 47,235; in 1880, 59,669.

If things remain as they are, 1890 will show a further increase of this huge illiterate vote. Things will remain as they are in these matters; rather, they will grow worse, unless the South gets strong help to bear her double load of ignorance and poverty.

We are apt to put a rose color on even such figures as these. A very little ability to read and to write takes one out of the lists of the illiterate in the census tables. The inquiries are not searching; few men are willing to acknowledge that they cannot read. I make no question that many thousands counted out of the illiterate columns can neither read nor write; it is beyond all question that hundreds of thousands who can, in a mechanical way, do both are less qualified by general intelligence to vote than are many who can do neither.

Mere ability to write one's name and to read coarse print imperfectly is no good proof of fitness to vote. This sort and degree of ability may exist with absolute ignorance of the merits of the issues involved in popular elections.

Let me give a fair specimen, drawn from life. There is not a touch of fancy or burlesque in it. For nearly eight years I have had in my employment a colored man of good character and superior qualities. He is above the average of his race in intelligence; he is about my own age; he can sign his name imperfectly and he can read a little. You will miss the point in my story unless you bear it distinctly in mind that this man, Daniel Martin by name, has voted the Republican ticket every time since he was made a voter, and that he so votes to this day. Let me show how well qualified a man may be to be a voter who can just

write his name and read a store sign. The day before the Hayes and Tilden election Daniel was ploughing in a little field near my house. One of the students asked him: "How are you going to vote to-morrow, Uncle Daniel?" The southern negro never delivers a grave judgment without coming to a full pause in whatever engages him. One consequence is he comes to a great many stops. Moreover, he thinks in metaphor and speaks in parables. So Daniel came to a full stop in his ploughing, and, sticking his plough deep into the ground, delivered himself as follows:

"Now, Mr. Longstreet, you see me plowin' along dis furrow here; if I plow dis furrow all de time, I makes dis furrow too deep and I don't plow de balance of de patch." Longstreet admitted the force of the statement. The philosophic voter continued: "I think things is bin gwine on one way 'long enough; dere ought to be a change. Wharfore I'se gwine to vote for Hayes to-morrow."

The next day he and I went to our county town and voted. He voted for Hayes, that there might "be a change," I voted for Tilden that there might "be a change," and we were equal before the law.

Talk to such a man about the tariff, taxation, the currency! You had as well talk to him about horizontal parallax and spectrum analysis.

There is no question so pressing in the United States to-day as this: "What can we do with Daniel Martin in politics, the white Daniel and the black Daniel?"

Every male person twenty-one years o'd, not an idiot or felon, is a voter. The vote of the most ignorant weighs as much in law as the vote of the wisest. In the South ignorance is really in the majority; practically it amounts to this: Where one man in the South knows what he is doing when he votes, there is at least one man who does not know what he is doing. Sometimes there are two of them.

The votes of ignorance are not in any country—in Massachusetts or South Carolina, in New York or Georgia—determined by intelligent discrimination between men and measures. The best thing that ignorant voters can do is to vote on the judgment of the wisest men. But this is the thing they are least of all likely to do. As a rule, the illiterate voter is not under the guidance of the wisest and best citizens, but of the cunningest and most unscrupulous citizens. It is not your best man who has most power over the illiterate voter; generally it is your worst man. The least dangerous element in the votes of the illiterate is not that their ignorance disqualifies them for a rational judgment, but that it exactly qualifies them to be the tools of bad men.

It is neither exaggeration nor faucy. More than one-half the vote in the South represents just this: The wishes of wirepullers and office-seekers. What determines this huge illiterate vote? (1) In small part, the ad vice of intelligent men; (2) in great part, the management of shrewd men; (3) in large part, bribes in one form or another; (4) in

considerable part, prejudice inevitable to ignorance, whether of white people or of negroes.

What does voting like this signify to republican institutions?

There is another matter of measureless moment to be mentioned just here. Where the majority or even a great part of the voters are illiterate, cheating in elections is as easy as it is certain. The wrong done to the illiterate in such cheating is less than the injury done to those who do the cheating. In the one case, a vote cast by a man who did not know its value is not counted or is miscounted; in the other, a man who does know its value is debauched by corrupt politics.

Denouncing corruption in elections will not give us honest elections; honest elections must at least be made possible by qualifying the electors to vote rationally. There never was one man who knows why he votes, especially if he pays all the taxes, satisfied to be voted down by another man who does not know what he is doing, especially if he pays no taxes. There never were one million of men who know why they vote and who pay the taxes who would long endure to be voted down by another million who do not know what they do in voting and who pay no taxes.

It would be hard to prove that the capable ought to endure being voted down by the incapable. If they do, the ends of government are destroyed. This side the millennium capable men will not, if they can help it, endure such voting down by ignorance. After the millennium there will not be such voting. If capable men are forced to endure such voting they will come to abhor republican institutions. When this feeling is fixed in the hearts of men the foundations are destroyed.

What are we to do with the ugly facts revealed by the inexorable census table?

The treatment of these facts will depend on those to whom their attention is brought. Some men will not think of them at all; disagreeable facts they ignore, because the study of them disturbs their repose. But we do not do away with ugly facts by shutting our eyes to them. It would be as wise to reject vaccination and quarantine when small-pox is epidemic and pacify our anxieties with affidavits that there is no small-pox, or that it is not dangerous, or that it is, upon the whole, rather an advantage, as giving employment to undertakers.

Some among those who control the press of the country are content to publish these ugly and portentous facts as mere "news items." Others, seeing that here is something to arrest attention and to awaken anxieties, are content to lecture the South, telling her for the thousandth time how much behind she is. No efficient remedy this for the evils indicated by the facts. Some are in despair; they have sunk down into the abyss of political pessimism; they say there is no remedy whatever; they have despaired of the republic. With all their railings and wailings and prophesyings these men are not true lovers of their country, else they would not despair so readily.

Others are indifferent; they don't care. They are the favorites of fortune; they are having a good time, making, hoarding, or spending their money. To them the poor and ignorant are nuisances; they rather hate them than otherwise. Of the Government, of our republican institutions, they know little and care less. They have no national feeling in them; they are utterly devoid of patriotism. "They are preserving their game"—talking "imperialism" over their wine. And this class controls a great deal of money. Very careless and indifferent they are; but they have abundant reason to care. The ignorant vote, that holds the balance of power, is a constant menace to the institutions that secure them in the enjoyment of their gold, their bonds, and their palaces. This great black giant of ignorance, many-handed, grim, and desperately hungry sometimes, is digging away at the foundations. So far as money values are concerned, these careless ones have most reason to care.

Some, patriotic enough so far as mere sentiment goes, smile at the apprehensions of the thoughtful student of facts, rely complacently upon what they dream of as the glorious "destiny of the republic." They talk about Providence. There is no blinder folly than faith in Providence that refuses to use the means that Providence appoints for securing gracious results. Providence never yet saved any nation that refused to do what it could do to save itself. Such a nation is not worth saving; such a nation cannot be saved. Salvation of any sort must proceed according to law; there is no saving a man or a nation in violation of law. It would be a violation of law—fundamental and absolute—to save republican institutions by the votes of men who do not know what they are doing. No device of law, no constitutional amendments, no statutes regulating elections, no force of arms, can secure institutions that depend on elections determined by ignorance. In the very nature of things such preservation of republican institutions is impossible.

Some visionaries calm their fears by their confidence in the educating power of the ballot. The ballot has this educating power when placed in the hands of ignorance: it discovers its power to the point of making the best bargains with parties and candidates when votes are wanted.

So far, in this address, there has been no special reference to the negro vote; we have been glancing at southern illiteracy in bulk, and fearful it is; and for this good reason, a white man who knows nothing is as dangerous as any other man who knows nothing. Worse he may be; worse he is, if he has more force. If he is superior in any respect, his very superiority makes him more dangerous. When machinery is out of order, the greater the power that drives it the greater the ruin. Thoughtful men in the South are awake to the danger that lurks in the illiterate white vote of their section. When they cry for help, they want education for their white as well as for their colored fellow citizens.

But, as all informed people know, the condition of the lately emanci-

pated people of the South constitutes the stress and urgency of the appeal we make to the nation for such help to meet this great emergency as only the nation can extend.

There are now nearly seven millions of negroes in the United States, about one-eighth of the whole population. The great mass of them are crowded into eight or ten of the late slave States. They increase faster than the white population. The increase of the whole population from 1870 to 1880 was 30.06 per cent.; the increase of the white population, aided by large immigration, was 28.82 per cent.; the increase of the negro population, unaided by immigration, was 34.78 per cent. Thoughtful people will consider such facts.

Out of these facts arise questions that concern the very life of the Southern States. The whole nation should have a care for what so deeply concerns the South; for the South is a vast region of untold possibilities, indissolubly bound to the Union. The nation affirmed, through a long and bloody war, that it could not get on without the South; these States have now concluded that they cannot get on without the nation. We are one people and we expect to remain one people.

To the people of the South it is a matter of overwhelming concern that these millions of negroes, made citizens in a day and armed with the ballot, should at the earliest possible moment be qualified for citizenship. But is it a southern interest only? Is it a matter of small moment to Massachusetts, to Connecticut, to New York, to Minnesota, or to any State in the Union free from this trouble and danger of a vast illiterate negro citizenship, that Georgia, South Carolina, Alabama, Mississippi, and other Southern States are now wrestling with the hardest problem that was ever forced upon any people? Does government by illiterate votes in the South mean nothing to the States North and West? May States exposed to all the perils involved in illiterate majorities suffer the evils inevitable under such conditions without infecting with the deadly virus other States more fortunate in these respects? Carlyle tells of a poor Scotch pauper woman who could not from any get recognition of her sisterhood; she died of typhus fever. Typhus fever killed seventeen other persons in her alley; and thus she got recognition of sisterhood.

These illiterate majorities are not limited to State elections; they enter into the election of President and members of Congress. If a man in New England is interested in the election of President or of the Congress, he is interested that voters in the South should have some knowledge of what they do when they deposit their ballots.

What is to be done? These people, these ignorant people, white and black, for the most part wretchedly poor, must be educated; they must be taught to read, to write, and to keep accounts. As to the majority of the parents of the untaught children in the South, it is as much as they can do to live, to live in a comfortable way. They are unable to meet the expenses of their children.

Some say let the Southern States educate their own illiterates. Easy solution this, so far as words go. *But the Southern States cannot do it.* In proportion to ability the Southern States are now doing about as much as the best Northern States; more than some. The State of New York is worth in taxable property as much as all the Southern States, yet these expended on their schools in 1881 \$13,359,784; in 1880 New York expended \$9,936,652. The total valuation in New York was, in 1880, \$2,651,940,000; the total valuation of the Southern States, including Missouri, was, in 1880, \$2,903,619,070; leaving out Missouri, \$2,370,923,269. New York is richer than the whole thirteen grouped in the census tables as "Southern States."

But in such comparisons it is the poorer States that deserve most credit. It is much harder for a poor man to pay 1 per cent. on his little property than for the rich man to pay 1 per cent. upon his great property; for the rich man has more left. What is left after paying to a good cause is a better gauge of liberality and public spirit than what is given.

To illustrate the general statement that the South is not able to take care of its hordes of illiterate children, let us compare two cities. The facts now to be stated are quoted from a report by Mayor Courtenay, of the city of Charleston. Mayor Courtenay says:

The facts are these: In the first place, the assessed values in the city of Charleston were \$45,000,000 in 1860; in 1880, \$21,000,000—a reduction of more than one-half in taxable values, in the face of an obligation to educate double the number of children.

This heavy load has been assumed up to the highest pitch of taxation, however, as the facts show. The taxation in the city of Charleston, in 1880, for public schools was three and one-half mills, made up under a levy of two mills under the State law, one and one-quarter mills under the special city tax, and one-quarter mill special levy to rebuild Friend Street School—in all amounting to about \$61,000 a year on public schools. And this is exclusive of an annual appropriation to the high school of Charleston and to Charleston College.

How much above a maximum this is, and what a burden this is, is evident upon comparison. For instance, compare this taxation with the city of Boston, whose schools are models and whose people have the world-wide reputation of giving liberally for educational institutions, and we find that the city of Boston gives a total of two and a half mills in 1880 for a complete public school establishment, of seven high schools, two Latin schools, one normal school, forty-nine grammar schools, and four hundred and eight primary schools. The city of Charleston gives in proportion nearly half as much again as Boston for her primary schools alone, and gives, in addition, annual appropriations to the high school and Charleston College.

We must remember, also, that this is done under a very heavy debt of the city, the interest of which requires ten mills of annual taxation. Again, consider that, besides the State tax, the total tax of Charleston City is $2\frac{1}{2}$ per cent., while that of Boston is only $1\frac{1}{2}$ per cent.

Let us consider briefly whether the Southern States, with less than half the resources of 1860, are now able to educate far more (counting the increased population, three times more) than double the number of children then knocking at their doors. Brief statements will suffice for men who are informed on these subjects. Take Georgia, more prosperous than the average of Southern States. In 1860 Georgia's taxable

property was, in round numbers, \$750,000,000; in 1880, \$238,000,000. In 1860 the wealth of Georgia, exclusive of the value of slaves, was over \$500 per capita; in 1880, about \$150. In 1881 Georgia paid for her schools within less than \$1,500 of \$500,000. At the same rate on her ante bellum property her school fund would have reached \$1,500,000. The taxable property of Virginia in 1860 was \$585,099,382.77; in 1880, \$324,955,980. Yet, in 1881, Virginia expended upon her schools \$1,100,239; at the same rate upon her ante bellum property the school fund in 1881 would have yielded nearly \$2,000,000.

Dexter A. Hawkins, esq., of New York City, in an address before the Social Science Association, at the meeting held in Saratoga, September, 1877, stated the case thus:

The assessed valuation for the taxation of property, real and personal, in North Carolina, South Carolina, Florida, Georgia, Alabama, Mississippi, Louisiana, and Texas in 1860 was \$3,244,239,406; in 1870, \$1,883,863,180—a shrinkage in ten years of 43½ per cent.

In some of these States it is less in 1880 than in 1870.

When the civil war was ended these States were crushed. They were utterly disorganized in all their industries; the investments that represented the savings of their past history were swept away. They were poor beyond conception to those not having that bitter experience.

What has been their history for nearly twenty years? A constant struggle with poverty. Embarrassed by new and strange conditions entering into, complicating, hindering all their industries, overweighted in every effort to get on their feet, loaded down with burdens and responsibilities, these States have done what they could to bear and to meet them. Hope and life would have died out of the hearts of people with less fortitude, courage, and endurance. They deserve respect, at least, that they did not utterly despair of themselves. We cannot compare the history of the past twenty years in the Southern States with any other history; that history stands alone.

What has been achieved in reorganizing society, in building up the country and its institutions, has been accomplished only by prodigious effort. These people have been lifting an increasing weight with a shortening lever; for, while there has been true progress and real growth in the industries of the South, the responsibilities of taking care of the ignorant population have grown faster than the ability of these States to meet them. If any doubt, let them compare the increase of the non-taxpaying population (over 34 per cent. in ten years was the increase of the negro population) with the meagre increase of taxable property in these States and with its actual decrease in others.

The plain truth is, the taxpaying people of the South have, as a whole, not been able to educate their own children; nevertheless, with the exception of two or three States (and these States are nearest the border), they have expended what school funds they had without distinction as to races.

As to the colleges and higher grade schools of the South, many of them, during this long period of storm and stress, have died utterly; all that survived were crippled; all are crippled now, with the exception of some of the State institutions and one or two others, helped mostly by the generosity of a few northern patriots and friends of their race. None of them have had the best facilities for doing their work. At every step in her efforts to do her educational work during this troubled period the South has worked at a disadvantage. The South has been under a grievous burden since the spring of 1861.

If it be demanded of me, let it be admitted that there is not so great an interest in popular education in the Southern States as in some others. But this only increases the force of the argument; for it increases the peril that is in our huge mass of illiteracy and diminishes the ability to meet it of those who are awake to the facts of the case. Beyond all question, thousands of the best people in the South are as fully awake to the truth of things and to the needs of the hour as men can be. But, for the most part, these men who do see and who do feel on this subject of education for the masses are poor—poorer than any other men of culture and character in the United States. They have done their best, lamenting their inability to do more.

Nothing is more certain than that the South cannot, unaided, meet the emergency that is now upon her.

We are told that northern charity is sending hundreds of thousands every year into the South to help do this work of education. That is true; and this patriotic and Christian benevolence is appreciated to the fullest by the best people. Heaven reward them, the Peabodys, the Slaters, Vanderbilts, Seneyes, Stones, and others as generous though not so rich. They have done a good work indeed. Children's children will have them in everlasting remembrance.

But this should not be considered as entering into the question of the ability of the southern whites to do the work that is upon them, and it is the ability of the white people that is to be inquired into, since they pay the taxes. Nearly all the money sent South since 1865 for educational purposes has been devoted to the education of the negroes, especially the great sums expended by the churches and benevolent societies of the North. This is not regretted; we do not envy the negroes the help that Providence sent them. They needed it sorely, and we rejoice with them. But this method of help, good as it has been, left the white people, thousands of them as poor as the negroes, to struggle with their own burdens without the help the negroes had, and left to the white people who were a little better off the burden of their own responsibilities in the matter of education and the payment of the taxes for such public schools as they had, dividing it with the negroes who paid next to no taxes, and yet had help that they had not.

Nothing less needs proving than this: There must be more schools

and better; more teaching and better teaching. This will cost money, a great deal of money, more than these impoverished States can raise.

Where is it to come from? From individuals? But a nation cannot depend on individuals to do a work almost too great for the whole people.

From churches and other benevolent societies? They are but aggregations of individuals, and societies representing but a part of the people cannot do a work that belongs to all.

It is the duty of the whole nation to help, for a time, the States with their heavy burdens. Is it better for this nation to leave these millions of illiterate people, with ballots in their hands, untaught, than to help the States carry a load that is crushing them? Is it better for this nation to endure these evils that are now upon us and to brave the greater evils into which they are growing day by day than to spend a few millions, paid into its treasury by the people, and to do this for the benefit of the people, that is, for its own benefit?

This duty of helping the States to educate these millions of illiterate people is a national duty, for national interests are involved in it. It is a national duty, for it must be done; the States most deeply involved cannot do it and the nation can. It is a national duty for the plain, historical reason that the nation, as such, made these millions of negroes citizens and voters before they were prepared for their new duties and relations, and in the very act of doing it and by the very method of doing it largely took from those who are now called on to prepare them for their new duties and relations the ability to do it.

The men of the South who have accepted the issues of the war in good faith may well use the language of Hon. W. E. Forster, of the English Parliament, in reply to the radical wing of his party: "*You demand universal suffrage; I demand universal education to go along with it.*"

Universal suffrage we have, and in the South, as to the large majority, illiterate suffrage. There is no remedy for the evils of this state of things, whether by repression within the States where the trouble is, whether from force of any sort without these States. There is no remedy that leaves out the school-house and the schoolmaster. Ethical education is sorely needed; but ethical education will make slow progress without the education of good schools.

Sensible and just men are not now discussing slavery; that is passed out of the argument. They are not discussing the relative blameworthiness of the sections. Doctrinaires and narrow and bitter men do that. Sensible and just men say:

"See here, this multitude must be educated; it concerns us all; the nation is endangered by this ignorant ballot; these Southern States cannot carry this tremendous weight, this burden no longer theirs in any exclusive sense, but now the burden of us all. The nation can bear it and bear it easily. Let the nation forthwith get about it."

We hear somewhat about the right of Government to do this work.

(1) It is now too late to raise this question. From the time of Washington the General Government has been doing things that involved the principle and asserted the right to extend aid from the public funds for the work of education. Time and again the Congress has set aside public lands or the proceeds of the public lands for the uses of education in the different States.

(2) When a nation sets its heart on doing a great and good thing it can find a legal way to do it.

(3) As to this call for national aid, so far as the South is concerned in it, there is one fact lying right in the heart of the question that no constitutional metaphysics or legal sophistries can dispose of or make other than it is. This nation asserted and exercised the right to emancipate and to enfranchise several millions of people, to make men citizens and voters by proclamations and acts of Congress before they could read or write, before they were prepared for the duties, responsibilities, burdens, and dangers that were thrust upon them. The time has fully come when the nation should exercise the right—seeing that it has ample ability—to do what can be done, and as soon as it can be done, to prepare them to be what they are not—intelligent citizens. If the nation owes nothing to its own safety; if it owes nothing to the taxpayers of the South, charged by the nation with responsibilities they cannot meet, the nation, by every consideration of justice and humanity, owes it to the helpless negroes that it set free and gave ballots to, to now do what it can to help them get ready to be free indeed, and to vote as freemen, and not simply as “freedmen.”

Some in the South seem somewhat troubled about a sort of drift towards “centralization” that may be lurking in this proposed national aid to education. It seems reasonable that the nation should meet an emergency that its own act created. Moreover, if the nation should give this aid—coöperating, as it is most natural that it should do, with the State school authorities—there is no danger of centralization.

Some say this theory of a “paternal government”—this call upon Congress for help to educate—involves the right to call for other help, as, for instance, for “shoes for the children to wear to school.”

If it shall appear upon inquiry that wearing shoes enters into the very essence of the qualifications of a voter and voters cannot by any means procure shoes, why, in the name of common sense, let the nation buy them shoes or have done with the farce of voting. But a man may be a qualified voter without wearing shoes. One may conceive of a bare-foot philosopher voting wisely; no man can conceive of a philosopher who is also an ignoramus; no more can he conceive of a citizen qualified as an elector who does not know what he is doing.

If the nation, through its Congress, grants this petition for aid the money will be wisely and honestly used; for the best people in the South will be vitally concerned in its proper use, and the whole people—

the rich, the poor, the white and the black people—will all feel a personal interest in it. Every father will feel himself bound to watch with ceaseless vigilance that this precious money—the gift of his country for educating his children—be wisely, faithfully, economically used.

Judge WILLIAM LAWRENCE, First Comptroller of the Treasury, was then introduced, and addressed the meeting as follows:

CONSTITUTIONALITY OF NATIONAL AID TO EDUCATION.

LADIES AND GENTLEMEN: The remarks of the distinguished gentleman who has just taken his seat and the revelations of the census of 1880 demonstrate, among other things, *two* principal facts, which it is now proper to notice:

(1) That in all the States of our Nation illiteracy exists to an extent far greater than has been generally supposed, and that in some of them it is so overwhelming and appalling as to endanger the existence of republican government; and,

(2) That in a few of the States of the South in which illiteracy in some measure predominates the limited property resources of the people are wholly inadequate, by any system of taxation that can be devised, to supply the requisite number of teachers and other needed facilities for common schools.

We are therefore confronted with the question whether Congress can in this emergency furnish any or adequate relief. I propose to demonstrate that the Congress of the United States has ample power with the assent of any State to aid common schools therein established or authorized; and that, without such assent, Congress has power to organize and conduct schools in any State in which there is no system of schools adequately provided and supported.

In order to demonstrate these propositions it is necessary to define a republican government and to state one condition essential to its existence:

(I) A republican government is one in which the sovereign legislative power is exercised by representatives elected by qualified voters who include substantially the entire adult male population. This is the American definition. I do not now consider the question so much mooted, whether the true republic should extend suffrage regardless of sex.

However that may be, a government which excludes from the privilege of exercising suffrage any portion of the adult male citizens subject to its jurisdiction, who are not guilty of crime and who comply with the just requirements of reasonable laws, is not republican.

(II) It may be assumed, that a republican government cannot be maintained without a substantially universal secular common school education for all children of proper school age.

On this subject it cannot be necessary at this late day to quote the opinions of statesmen, or to add proof by reference to the dead and buried republics of other ages or to the utter failure of those which at this day are denominated republics, but which in fact are mere military despotisms in a chronic state of revolution.

(III) Assuming that the education to which reference has been made is essential to the existence of republican government, the real question is whether the National Government has power to preserve its own existence by providing such education.

I affirm that it has such power (1) by express provision of the Constitution, and, (2) even without this, as a necessary incident of the sovereignty with which it is invested.

The express power is found in article IV, section 4, of the Constitution, as follows:

The United States shall (1) guarantee to every State in this Union a Republican Form of Government, and (2) shall protect each of them against Invasion; and, (3) on Application of the Legislature, or of the Executive (when the Legislature cannot be convened) against domestic Violence.

So far as the exercise of legislative power is necessary to perform the duties required of the United States by this section, it of course belongs to Congress. Thus Chief Justice Taney said in *Luther v. Borden* (7 Howard, 42), that—

It rests with Congress to decide what government is the established one in a State. For, as the United States guarantee to each State a republican government, Congress must necessarily decide what government is established in the State before it can determine whether it is republican or not.

It will be noticed that Chief Justice Taney says "the United States guarantee to each State a republican government." The words of the Constitution are "a republican *form* of government." This manifestly was intended to secure the *substance* as well as the *form*, since the mere form without the substance would be *vox et præterea nihil*.

It is clear, then, that Congress has power by legislation to guarantee to each State a republican government.

To guarantee, says an eminent author, is "to become responsible for; to warrant; to undertake for another that, if that other does not do the thing, the party guaranteeing will himself do it." (Paschal's Annotated Constitution, third edition, section 233.)

If Congress shall by law decide that a State has not the means to provide adequate education or has failed to do so, and that aid to such State is essential to preserve in it a republican government and provide for such aid accordingly, this is an exercise of power which is warranted by the Constitution and cannot be questioned in any form.

The same may be said of the exercise of power by Congress to establish and control schools requisite to fulfil the duty to guarantee.

All this must be manifest from several considerations.

(1) The provision of the Constitution which gives the power to make

the guarantee is coupled with clauses giving two other powers, one to protect each State against invasion, the other to protect it against domestic violence. From this it is clear that the framers of the Constitution were dealing with the general subject of perpetuating the existence of a republican government in each geographical State. With this purpose in view, the Constitution gives power to Congress to save each State from destruction by foreign invasion or from domestic violence. One danger of domestic violence was slavery, but all forms of domestic violence are comprehended. In considering the power to guarantee a republican government, the maxim of construction is to be kept in mind, *noscitur a sociis*. The Constitution, upon this maxim, no less than by its own plain words, gives to Congress the power to save each State from destruction, from whatever source the danger may arise or be threatened.

Universal illiteracy is more dangerous than foreign invasion or domestic violence. Such illiteracy may indeed be a source or cause of domestic violence.

When invasion is threatened, Congress may act. When domestic violence may be reasonably apprehended, Congress may act.

When appalling illiteracy is not only prospective, but is already upon any State, threatening the overthrow of a republican government therein, then Congress can intervene, is bound to perform the obligation imposed on the United States to guarantee the existence of a republican government.

(2) The existence of the power of Congress, as stated, is fully proved in principle by high authority. Thus, it is said :

If there be any general principle which is inherent in the very definition of government and essential to every step of the progress to be made by that of the United States, it is, *that every power vested in a government is in its nature sovereign and includes, by force of the term, a right to employ all the means requisite and fairly applicable to the attainment of the end of such power*, unless they are excepted in the Constitution, or are immoral, or are contrary to the essential objects of political society. (Story on Constitution, 1,240.)

In other words, the Constitution, in giving to Congress the power to guarantee a republican government to each State, gives also to Congress the incidental power to employ the necessary means to do so, including the establishment of or aid to common schools. This mode of construing the Constitution is sanctioned by principles as old as the common law. Thus it is laid down among the maxims of Dwaris for the construction of statutes that—

In statutes, incidents are always supplied by intendments; in other words, whenever a power is given by a statute, everything necessary to the making of it effectual, is given by implication; for the maxim is *quando lex aliquid concedit, concedere videtur et id per quod derogatur ad illud*. (Potter's Dwaris on Statutes, 123.)

This rule is equally applicable in the construction of the Constitution. The application of it now is that the Constitution, in giving to Congress the power to guarantee to each State a republican government, gives

also the incidental power to use the means by which the guarantee can be made effectual, including the right to aid or establish common schools as a means to that end.

In those cases in which Congress is authorized to exercise powers of this character, the propriety of the means employed cannot be called in question.

Thus it has been held by the Supreme Court of the United States that—

If a certain means to carry into effect any of the powers, expressly given by the Constitution to the Government of the Union, be an appropriate measure, not prohibited by the Constitution, the degree of its necessity is a question of legislative discretion, not of judicial cognizance. (*McCulloch v. Maryland*, 4 Wheaton, 316; *United States v. Marigold*, 9 Howard, 567.)

It is thus shown that the Constitution gives to Congress express power to guarantee to each State a republican government, and that Congress may aid or establish schools as a means of securing the permanent existence of republican governments in the States.

(IV) The power of Congress to aid schools in the States exists as a necessity, as a part of the means of preserving national existence.

But it cannot be necessary to argue this branch of the subject.

(V) This power of Congress has been asserted and exercised from the foundation of our republican system of government. Immense grants of lands have been made by Congress in aid of common schools and colleges. If Congress has no power to aid schools and colleges, these grants are void. But the power to make them has been settled by long continued *usage*, which is said to be "the best interpreter of things," *"optimus interpres rerum usus."* (Broom, *Legal Maxims*, 917.)

It would be interesting to present the number and dates of the acts of Congress making these grants and to state the amount of land granted to the States respectively, but time will not now permit.

(VI) For two years past Congress has been discussing the proper mode of reducing our superabundant revenues. This is well. A reduction is demanded by the best interests of the people. While internal revenue taxes are permitted to remain on spirits and fermented liquors, I would, if I could, distribute the annual revenue derived therefrom—amounting to an average of \$65,000,000—in just proportions to the several States. This would give to each State a sum sufficient to make a large reduction in the taxes of the overburdened taxpayers. It would enable the States to pay better wages to the teachers in our common schools, who richly deserve better compensation for the highly meritorious services they are rendering all over the Republic.

By this policy the number of common schools in some of the States would be multiplied, the neglected children of the colored people who have so recently emerged from bondage be cared for and educated, and the means of ample education be secured for all the children of the land, the poor and the rich alike.

With universal education the Republic will live to bless the ages of the future.

Hon. JOS. DESHA PICKETT, State superintendent of public instruction of Kentucky, followed Judge Lawrence. The stenographer's notes of his remarks were submitted to him for revision before publication, but have not been returned. Mr. Pickett explained that he was reared in the Jeffersonian and Jacksonian school of politics and was taught to have confidence in the rights of the States; he therefore took exception to the statement that Congress has authority to establish school systems irrespective of the States. But that is not the question which is presented here. The real question is, Shall the Congress of the United States assist the States in carrying out their systems of education? The speaker referred to the grants of land made by the National Government in aid of education, and, concluding, said:

Let us then come together with a generous, fraternal spirit, and let us try to devise some ways and means whereby we may present this great question to the consideration of the Committees on Education and Labor of the Congress of the United States; and may we be blessed in this effort.

FOURTH SESSION — THURSDAY MORNING.

WASHINGTON, *February 22, 1883.*

Mr. CALKINS, the president, called the meeting to order, and prayer was offered by Rev. B. G. Northrop.

Mr. NORTHROP, from the committee on national aid to education, presented the following resolution:

Resolved, That in view of the necessity of education to the perpetuity of free institutions and of the great and disproportionate burden which adequate provision for universal education would impose on some of the Southern States, this association expresses its conviction that it is alike the duty and the interest of the National Government to extend to the several States, especially to those in which the burden and danger of illiteracy are greatest, such pecuniary aid as shall enable them to provide that all the children and youth within their borders shall receive at least an elementary education. We also express our conviction that such direct appropriations from the National Treasury should be made to the several States in proportion to illiteracy, and distributed under proper conditions and safeguards, through existing local officers. We believe that the emergency is so urgent as to demand immediate action by the present Congress, and that ten millions appropriated at once will avoid more than twenty times that amount twenty years hence; for universal education, when once fairly tried, will be continued without national aid.

On motion of Mr. NEWELL, of Maryland, the resolution was adopted. Mr. RICKOFF, of Yonkers, N. Y., moved that the subject of Indian education be called up. Carried.

INDIAN EDUCATION.

The time for remarks from General Armstrong not having yet arrived, the president called upon Hon. B. G. Northrop, ex-secretary of the

vation, docile and tractable, though not excelling in the mastery of the English language. One hindrance to their progress in English is the very limited linguistic training they have had in their own tongues. There are at Carlisle representatives from 34 different tribes, speaking different dialects. These languages are said to be exceedingly meagre. The number of words they have used in their own vernacular is small. This difficulty will be appreciated by all who remember that language is the chief instrument of human investigation and progress, the means and measure of any one's growth and culture.

The question has been whether the Indians shall be educated near the reservations or far away. Captain Pratt's experience proves that the further they can be removed from their tribal associations and influences the better for them.

In Carlisle all the boys attend the Sunday schools connected with the different churches of that town. Great interest in their welfare is manifested by the good people of this place. Their pastors frequently address them in their school chapel, where the fine singing of these Indian youth is a surprise to every visitor. The kindness and sympathy shown them on every hand is in striking contrast with the influences which have met the Indian on the frontier, where the white man has so long been viewed with suspicion and dread.

In the "reservation schools," the savage influences of the camp or the visits of parents have often neutralized the lessons of their teachers.

In looking over the report of the Indian Commissioner, which gives the statements and experiences of the agents and teachers, I find the great embarrassment in the organization of schools has been the irregularity of attendance. That difficulty is entirely overcome by bringing them far from the tribes. Of course, the matter of attendance is easily regulated while they are at such a school as that at Hampton, or Forest Grove, or Carlisle. The last is much larger than any other supported by the Government. The matter of discipline is here very simple. I have in hand an account of the instances "reported" to the head teacher—all the teachers are ladies—for any form of misconduct during the last year; in five months there was not a single case reported.

As an illustration of their facility in learning, I may mention that I saw a class of thirty draw from memory a very excellent map of South America on the blackboard in four minutes. They drew a map of the United States in about five minutes. I have a letter written by a grandson of Red Cloud, who entered the school on the 4th of December last, a dictation exercise, but a very good specimen of writing for so brief a time of schooling. I have another from the daughter of Spotted Tail, who entered at the same time, which is a copy of a letter she wrote to her mother, and many others, which, under the circumstances, are fine specimens of handwriting and composition.

I saw the strongest indication of the pupils' desire to learn the English language, and very commendable indications of their

in all the common English studies. They are occupied half a day in the shops, learning industrial trades, and half a day at school; and there is an evening school of an hour or an hour and a half, in which all the shop boys and girls, as well as any who have not yet found opportunities for industrial training, are occupied. They are doing admirable work in carpentry, joinery, harness making, the making of boots and shoes, blacksmithing, the manufacture of carriages, tinsmithing, and in baking. The Indian Office purchases of them a large supply of coffee-pots for the Indian service. The girls are learning the use of the sewing machine, even the more difficult work of making button holes and cutting and making dresses; and in the laundry the girls wash and iron some 2,500 pieces a week; in summer they are occupied, as much as can be arranged for, in learning domestic work in families, the boys being engaged in farm work. There is already a good sized farm belonging to the institution, and the expectation is that a much larger farm will be secured at an early day. To give the boys the desired training and experience in farming, there ought to be not less than 500 acres connected with the school. No other training would be so useful to them on their return to their old homes, where agricultural skill is little known and greatly needed. The farm work is done without machinery, that is, they do not use the mowing machine nor reaper, so that the boys may be trained in the hand work that may be of most practical benefit when they return to their tribes.

The census tells us that there are about 50,000 Indian youth of school age. There are 476 in Hampton, Forest Grove, and Carlisle, nearly 4,000 in reservation day schools, and 3,999 in boarding schools near the reservations, so that the demand, which is immediate and urgent, is only partially met.

It seems to me that Captain Pratt, from his long and varied experience, from his natural tact, quick perception and discernment of human nature, and especially of Indian character, his patience, broad Christian sympathies, his enthusiasm, and magnetic power, is marvellously adapted for his position. I think he has done more for the solution of the Indian question than any other man for the last fifty years.

The school governs itself; I mean there is a spirit of order and devotion to education developed among the boys and girls that leads them to repress any gross impropriety or disorder. In any serious case discipline is enforced by court-martial, and some of the older boys constitute the court. They are sure to make a just and fair decision, and a decision given by them is accepted as right and proper by the boys.

There are about 130 girls at Carlisle. The ages of the pupils range from nine or ten to thirty or more.

Never before in our history have the American people had such an opportunity of befriending a long injured race as now. The exigency is urgent. A liberal expenditure for Indian education will prove a wise investment. One million expended for this purpose now will be worth

more than twenty millions twenty years hence. Let the Indian be once educated, made a citizen and a landholder, and he will never again go on the war path.

ADDRESS OF GENERAL S. C. ARMSTRONG.

The work now being done at Hampton we feel to be of especial interest, including, as it does, experiments on a large scale with representatives of two races, the Negro and the Indian. These people, who are with us and with whom we share a common fate, are a thousand years behind us in moral and mental development. Substantially the two races are in the same condition, and the question as to what education is best for them, and how such education is to be put within their reach, is pressing itself closely upon all thinking men and women. Something more than ordinary school training is required for them, and it is evident to us that power lies not so much in what is taught as in the teachers and the surrounding conditions. Race education must be recognized as demanding thorough study and involving many factors. It is not tuition from books so much as a massing of all the influences of civilization. Our pupils are clay in the hands of the potter; they strive to live as they see us live; our responsibility is tremendous and our interest proportionate. Nothing short of the best teachers, with the best methods, can do justice to the work, for they must begin ab ovo and build up the individual.

In teaching language, we have one of the best graduates of Wellesley College, thoroughly trained in methods, but depending mainly upon her own inspiration. In the industrial system our pupils find a revelation. We preach a gospel of work to those whose misconception of the value of work is shown in the low standard of the southern negro laborer and the enforced and despised toil of the Indian woman. Our students work as hard during the last month of their stay in school as during the first, are paid fair wages, with which they meet their school expenses, and now earn an aggregate of about \$32,000 a year. As far as possible we avoid charity, and develop skill often to the extent of doubling or trebling a pupil's value.

On the moral side, we ask little as to the previous life, but demand a sincere intention to improve, and strike lines of development of which very few dream. Their immorality is largely the immorality of ignorance. In my fourteen years of work among the negroes the finest, most hopeful thing I have seen is the moral rally of the women.

Negro education is, on their side, only a question of opportunity, and we, who on every hand feel our limitations, are looking to Washington to increase that opportunity. Private charity and State appropriations will not take care of 25 per cent. The rest are casting ballots which they cannot read and stand as masses to be bought and sold by demagogues. Mental training helps moral development and vice versa; the identity of interest is beyond question. I know that expensive in-

dustrial schools cannot be built up everywhere, but the principle can be introduced into any school; work of some kind during part of the session can be made essential and the main idea never lost sight of.

The solution of the negro question, in at least one of its many phases, is for the present generation, by the purchase and cultivation of land, to provide a substantial basis for the healthy growth and development of the generation to come. The hope of the race lies in their getting, not knowledge alone, but with it a true appreciation of the necessity and value of labor. It is, to those who work among them, a great encouragement to find that they are remarkably able to receive and assimilate ideas.

The Indians are, of course, a widely different race, under widely different conditions, though demanding very similar training. Five years ago we, at Hampton, knew nothing about them and took up the work as an experiment. The result in the individual is a success, our Indian graduates leave us strengthened and well equipped. The problem is, what shall be done with them? They return as educated Indians to the influence of agents, who are frequently incapable men, and the chances are against them. It becomes a question of surroundings, and these are beyond our reach. We have demonstrated the possibility of producing strong and trustworthy individuals; for the conditions which alone can insure their continuous development or a field for their work, others are responsible.

ADDRESS OF MISS A. C. FLETCHER.

Two difficulties confront one who would speak of Indian education: (1) the variety of interests involved in the subject; (2) the variety of prejudices concerning the Indians. Before speaking of the first it may not be amiss to say a few words concerning the second.

The antagonism felt toward the Indian seems to result not so much from conflicts incident to our possessing the land as from his sociologic status, which differs so widely from our own. It is a comparatively recent suggestion that a social condition similar to that of the Indian preceded our present advancement, and that an intelligent study of archaic forms of society may reveal the sources of some of the laws and customs which are still potent in our midst. This suggestion, however, has not yet affected the bulk of our people, and the indiscriminate name of "savage" is still sufficient to practically cut the Indian off from human interest and sympathy. The potency of the name "savage," both in the past and the present, cannot easily be overestimated. It fixes an estimate upon the Indian; it biases observation of him; it modifies our action towards him. During the past there have been, here and there, students who have endeavored to search through the environment of the Indian for an explanation of his condition; to investigate his language, myths, and ceremonies, to find the springs of his thought and action; to study the Indian as a fellow man, and thus learn of his real

character and his every day life. The efforts of these students have not been without effect. Already the public conscience is awakening, and to-day there are many who will admit that the Government has acted wrongfully toward the Indians; but there are not so many ready to admit a personal responsibility for the prejudice and ignorance consciously or unconsciously indulged in, which have made the deplored governmental action possible. Since it is the people who mould and give force to official deeds, the public bad faith toward the Indian has been in accordance with the general indifference toward a "savage," and, while ignorance is tolerated and misstatements concerning the Indian authoritatively taught, right conduct either in private or public capacity is not likely to be the rule.

Indian society is generally supposed to be without law or order, a sort of random life, but careful investigation is showing that most, if not all, the tribes are organized into gentes, the gens being based upon relationship; these gentes combine to form fratres, the fratres join to form the tribe, and tribes unite to form confederacies; and this order of society was in force long before the advent of our race upon this continent. The gens is, so to speak, the social unit. It possesses a distinctive name, significant of its religious or social ancestry; it has a system of names which are given to its members; it has its hereditary chief, elective chiefs, and soldiers; its location in the tribal circle is fixed; and it has its functions and duties in the religious and secular tribal ceremonies. It is, therefore, a little community possessed of distinct powers, but lacking the means of perpetuation because of the law which forbids a member of a gens to marry within his gens. Thus the ties of marriage and collateral relationship bind the gentes together. Each Indian, therefore, is born into his gens, where he is thenceforth fixed, for he may not set up his tent and establish his home except with his gens, where his immediate interests and responsibilities centre. The influence of the gens holds even when the Indians have broken up the tribal circle and scattered out on individual farms, and many generations will pass before all traces of this ancient social form will cease to exist. The fratres are effective in certain ceremonies which concern the gentes and tribe. The tribe thus compacted needs little explanation at present, except, perhaps, as concerns war and the office of chieftainship.

War among the Indians is generally a private enterprise. When a man desires to avenge a wrong or wishes to wander forth in quest of booty, or if, in the recklessness of sorrow, he desires to risk his life to assuage his grief, he steps forth into the tribal circle or open space and announces his intention to go on the war path. Then, when he has fulfilled certain ceremonies, he departs, and is followed by those of his kindred or friends who care to join in the venture. Each one goes voluntarily; no one is urged or forced to be of the party. War, therefore, rarely involves any considerable part of the tribe, and there is no

record of a war ever being the unanimous wish of the tribe. Warfare partaking of this private and irresponsible character is more disastrous than when organized and national, since it renders life and possessions exposed to individual caprice. This custom, so detrimental to the advancement of a people, is in part counteracted by the authority vested in the chiefs.

It is the duty of the chief to prevent quarrels, to settle those that take place, to preserve harmony in the tribe, and to make peace with other tribes. His office is semireligious, and he cannot go on the war path or lead his people in battle unless under the stress of defensive warfare. Our failure to understand the private character of war parties and the peaceful duties of the chiefs has led to mistakes. Negotiations have been entered into between the Government and Indian soldiers, and not with the chiefs of the tribe, who were quiet at home. The tribe, not being officially represented either in the war or in the settlement, regarded the whole transaction as a private arrangement, which could not concern it as a whole. "Paper chiefs," as the Indians often call these Indian soldiers whom our army has sometimes caught and negotiated with, possess much less influence in the tribe than we are wont to fancy, and are never counted as chiefs unless they are initiated into the office by the regular tribal form.

Indian society has, therefore, its peculiar organization, and is both real and effective. The same is true of the religion of the Indian. It, too, binds him fast with minute observances, intricate ceremonies, lengthy rituals, on the exact performance of which the welfare of his daily life and his future depend. The Indian's religious duties begin in his childhood and last throughout all his days. Fixity, not freedom, is the characteristic of primitive forms of society. We do not begin with freedom, but we may attain it if we are able.

Incapacity and aversion to work are supposed to be characteristic of the Indian, and are spoken of in connection with his being a hunter, and, in the popular notion, to be a hunter is to live for sport and the pleasures of the chase. When food is dependent upon the precariousness of game, the occupation of the hunter becomes one of grave responsibility and labor. Among many of the tribes hunting was conducted under the control of leaders, who were appointed to the office with certain religious ceremonies, and any person undertaking private hunting ventures without the knowledge and sanction of these officials would incur serious punishment. These rules were rigidly observed in the buffalo country. The life of an Indian man after reaching maturity was filled with activities and dangers, and it was impossible to avoid such a life in a land devoid of animals capable of being domesticated. The restless anxiety, bred of the fluctuating supply of food, was a heavy load of hindrance and retarded the advance of the people. Sex determined the occupation of the individual. The men composed the *combatant force*, they were the protectors and hunters; the women

formed the non-combatant part of the community, and were the agricultural and industrial portion of the people. Many of the peculiarities of the Indian race and customs are traceable to the absence of domestic animals. Our more fortunate race, being bred on a continent where lived the sheep and the ox, laid upon these animals the burden of food supply, and the mind, thus freed from its most pressing need, asserted its creative power and devised better modes of living, and gradually society developed into coördinated forms and industries. It is a suggestive speculation to consider what would have been our present condition had our immediate ancestors been forced to accept the poverty of this country in respect to animals, cereals, and fruits. When we look at the Indian mode of life, it is important to remember his environment on this continent and its potent limitations.

The Indian has always been a kind of artisan, and his hand is skilled by long heredity to steady lines and strokes, more fine than heavy. The trend of his past turns him toward the shop, where the work of the eye and hand are coördinated. To prove the truth of this statement it is only needful to call to mind the silver work of northern and southern Indians, the bows and arrows and other weapons, the wrought bone implements, the pipes, both historic and prehistoric; nor should woman's handicraft be forgotten, her weaving, quill embroidery, the articles made of skin, bark, and wood, her pottery making and free hand ornamentations. Our museums bear ample testimony to the industrial ability of our native races. The Indian, therefore, is not lazy, but he does not labor as we labor; he has not learned the value of persistent work, which begets provision and care for the future; and his environment in the past has been of such a character as to furnish no suggestion as to the need of such caretaking, but rather the contrary.

It is worth noticing that the Indians have not invented a lock and key, as it opens a singular vista concerning their estimate of possessions. When about to leave their villages they cached their goods to prevent loss from their enemies. Thieving among them is rare. The chiefs enforce the return of articles stolen. It would almost drop the race from the list of mankind to assert that Indians never steal, but it may truly be stated that stealing is not a characteristic trait. The contrary prejudice on our part is queerly indicated in the following quotation from an official communication: "They [the Indians spoken of] are honest, or, at least, as honest as it is usual for Indians to be. I have never known them to steal and their word can usually be relied on." +

Treachery toward a friend is almost unknown among Indians. Toward an enemy it is as it is with us: "All is fair in war." To the outside observer vengeance often seems indiscriminately practised by the Indians, but, according to their laws of the responsibility of kinship, the acts find explanation. Among the Indians kindred rise and fall together; any or all can be held responsible for the act of any one of kin, whether all are cognizant of the act or not. According to our law innocent and

ignorant persons may thus be made to suffer, but, according to Indian law, kinship must bear the burden. It is not many centuries since a similar code held us in its clutch.

When fairly dealt with the Indians are, as a rule, friendly, honest, and true. Truthfulness is an Indian trait. The ideal man is "straight." "I have talked to you without branches," said a venerable chief. The Indian idea of truth is simple, literal, hugging close to the fact, and this idea is consonant with his elaborate social and religious ceremonies. "It is" or "It is not" covers all the ground to the Indian, and he finds it difficult to comprehend the contingencies which hedge about our life and thought.

A careful study of the Indian reveals him to be a man bearing the marks of a common human nature. His peculiar environment has developed him in lines that do not coincide with our lines of development. If his ancient environment were to continue unaltered there would be little hope of any speedy or great modification of his ancient social and religious forms. But his environment has already changed, and he is to-day stranded upon unknown and untried circumstances. For this change we are directly responsible, as well as for the difficulties involved and their solution. We have corralled the Indian and tried by various expedients to postpone facing the problem of his future, until at last further delay is impossible. His future is indissolubly linked to our own, and the welfare of both races demands careful consideration of the question before us and the difficulties involved in it.

According to the last report of the Indian Commissioner there are in the territory of the United States, exclusive of Alaska, 262,366 Indians. Of this number 64,393 belong to the five civilized tribes in the Indian Territory and the Six Nations of New York State, leaving 197,973 Indians whose treaties and relations place them in direct line with our responsibility. The amount of land held in reservations is 224,259 square miles, covering an area of 143,525,760 acres. Deducting the amount belonging to the civilized tribes before mentioned, which is 19,672,147 acres, of which only 9,500,352 are classified as tillable, there remain 123,853,613 acres, contained in about 124 reservations, not including the Pueblo villages. These reservations are under the management of 59 agencies and are scattered over 11 States and 9 Territories.

Distribution of uncivilized Indians in the United States.

States and Territories.	Reservations.	Agencies.	Indian population.
California	5	4	11, 013
Colorado	1	1	925
Iowa	1	1	350
Kansas	5	1	633
Michigan	3	1	9, 795
Minnesota	9	1	4, 382
Nebraska	6	2	4, 014
Nevada	4	2	7, 831
Oregon	6	5	4, 520
Wisconsin	7	2	7, 756
Texas (military control)			108
Arizona Territory	6	4	14, 241
Dakota Territory	13	9	30, 117
Idaho Territory	4	3	3, 652
Montana Territory	3	5	18, 705
New Mexico Territory	3	3	28, 527
Utah Territory	2	2	2, 371
Washington Territory	16	4	13, 286
Wyoming Territory	1	1	1, 782
Indian Territory, exclusive of civilized tribes	19	6	18, 531

There are, besides, 15,434 Indians living at large without Government supervision or special land provision, and this does not include the remnants of tribes living in the Eastern States. The wide extent of country over which these tracts are spread, the variety of products, and the character of the soil should prevent too sweeping generalizations when considering how these Indians are to become self supporting on these lands.

Heretofore the question of Indian land tenure has overshadowed all other considerations pertaining to his welfare. Important as is this question, the statistics contained in the Commissioner's report show it to be less simple than has been supposed. Of the 123,853,813 acres contained in the 124 reservations and set apart for the support of the 197,973 Indians, only 8,096,463 acres are reported as tillable, which would give not quite 5 acres to each Indian. This calculation, however, is based upon an even distribution of the tillable land according to the location of the population, but the report shows that the tillable land is very unevenly distributed.

In California the number of Indians upon reservations is 4,874 and

the tillable land is put down at 5,500 acres, giving to each Indian $1\frac{1}{2}$ acres for his support, and that, too, in a region where irrigation is necessary to raise an adequate crop, and when we add the 6,579 Indians in the State who are not under any care the pro rata amount of land would be still less. In Michigan the 65,000 tillable acres give to each of the 9,795 Indians a little over $6\frac{1}{2}$ acres. In Wisconsin $2\frac{1}{2}$ acres of tillable land would be the portion of each one of the 7,756. In Nebraska nearly 30 acres could be allotted to each Indian. In the Indian Territory about 40 acres would be the share. In New Mexico barely 5 acres would go to each one of the 28,527 Indians.

In view of these and similar figures which could be presented, the question of the Indian becoming self supporting is something more than giving the Indians titles and telling them "to go to work on their lands," even if every Indian were adapted to farming. Agriculture, when the land is suitable, will undoubtedly be the employment of a large number of Indians, but it is clearly impossible for all, since there does not remain enough tillable land to yield support from the soil alone. The inexperienced labor of the Indian adds to the difficulty, and this arises from his isolation and consequent lack of training by means of observation and contact with farmers. It may not be inopportune to allude here to the fact that, heretofore, tilling the land has been considered by the Indians as woman's work, and the Indian man possesses the aversion, common in our own race, of one sex entering upon the conventional occupation of the opposite sex.

A considerable portion of the land classed as tillable requires irrigation, and to make such land profitable capital is needed and intelligent labor to construct ditches, canals, flumes, &c., and to keep them in repair. To force a people to accept the responsibility of gaining self support under such circumstances involves the obligation on our part of providing an education adapted to the environment.

A considerable portion of the land reserved is suitable for herding and there are many persons in our midst who advocate this occupation for the Indians as especially suitable and quote the advance of our race in the remote past through herding. The environment of our race was very different from the conditions of this continent, where the absence of animals capable of domestication has left the Indian without a heredity which would tend to make him successful in the care of animals. Herding is to-day not a pastoral occupation, but a business requiring capital, executive ability, and a knowledge of the market. None of these requirements are at present possible to the Indian, particularly with his barrier of language and ignorance of commercial methods. Herding for the Indian is for him to become practically a "cow boy," and the value of this schooling for civilization is at least questionable.

Looking at the Indian tribes from a close personal knowledge and study of their life and customs, it seems plainly indicated that variety of occupation and modes of winning self support is to be the rule with

them as it is with us. Nor can one expect every Indian to become an industrious, enterprising landholder. There will be such among the tribe, but there will also be the shiftless, indolent class that exists in every community. Heretofore this class among the Indians has been mainly regarded by us, and we have been inclined to gauge all Indians by the non-progressive ones. Our method of treating the race has been to level down and to attempt to make the community alike. The results have been unfortunate. It is the salvation of a community to permit those who can to advance and distance the less vigorous. It rouses latent forces and brings about thrift and social improvement. A moment's reflection will suffice to convince one of the disasters sure to follow an opposite course, and yet it is just this opposite course which has been enforced without exception upon the Indians until very lately.

The industrial schools at Carlisle, Pa., Hampton, Va., and Forest Grove, Oreg., are movements toward recognizing the value of the individual Indian. At these schools he is taught trades, the value of labor, personal responsibility, and is thus prepared to cope with the world and earn his own living. If, after five years spent at either of these schools, he chooses to become a farmer, stock raiser, or mechanic, he enters the field with a wider knowledge, a shiftiness of mind, that he could never have gained without this industrial training received at these schools and direct and friendly contact with our own race. Such training is the key which unlocks the prison door and sets the Indian free from the trammels of his own past and the white man's prejudice. Work makes the world akin, and the Indian can and he is willing to work, and eager to learn, as eager at least as it is possible for him to be, since he does not fully understand the benefits of knowledge. As has been remarked, the heredity of the Indian man inclines him to the trades, and he has shown considerable adaptiveness where opportunity for such work has been given him. In any vocation, however, which the present generation may undertake, allowance should always be made for the Indian's previous lack of training in persistent labor; this lack is perhaps the greatest drawback from which the Indian suffers.

The one thing imperatively needed for the Indian is industrial education. Educate him thus and he becomes a friendly neighbor and co-worker. Keep him in ignorance and isolation and he becomes dangerous to his own future and to those about him.

The Commissioner's report states that the number of Indian children who are of school age, exclusive of the five civilized tribes, is 34,662, and this is an underestimate, as several tribes are not reported. The number of reservation schools is given as 73 boarding, 105 day, and 2 night schools. These schools are maintained at a cost to the Government of \$278,733, exclusive of rations and part of the clothing. Various religious societies contribute \$58,725, and the State of New York \$17,644. The industrial schools at Carlisle, Pa., Forest Grove, Oreg., and the Indian department at Hampton, Va., receive from the Govern-

ment \$91,394, and religious societies donate to these institutions \$49,882. It is not improper to state that but for the generous outside support the effectiveness of these schools would be seriously curtailed.

The schools at present in operation can accommodate only 10,202 children, leaving a school population of 24,460 without any possible means of education or instruction in the ways of civilized life.

Where is the block in the way of educating these children? It is in Congress, which should appropriate the money. It is but just to say that there are men in Congress who appreciate the need of education for the Indian, who desire to have the money appropriated; but they are surrounded by such a dead weight of indifference and ignorance that they can make little headway. This year the appropriations are inadequate, considering the needs and just demands. Treaty obligations, the appeal of the Indians through their agents, the urgent request of the Commissioner of Indian Affairs, and the plain setting forth of the Secretary of the Interior failed to move the congressmen from their short-sighted policy and false notions of economy.

It is cause for congratulation that the present Secretary of the Interior is seriously and practically in earnest to secure education for the Indian. He says in his report:

At least one-half of all the Indian children of school age should be put in manual labor schools. * * * A large number can be provided for in the several manual schools of the different States. The capacity of the labor schools already established can be increased so as to accommodate a large number. A number of United States military posts, no longer needed for military purposes, can be used for the purpose of Indian schools, the Government thereby saving the cost of erection of buildings, &c. With liberal appropriations it is quite possible to provide for the education of 10,000 Indian youths in manual schools during the fiscal year 1884, and at least twice that number during the fiscal year 1885. * * *

10,000 children in the fiscal year 1884, at \$250 each	\$2, 500, 000
20,000 children in the fiscal year 1885, at \$200 each	4, 000, 000
25,000 children in the fiscal year 1886, at \$200 each	5, 000, 000
30,000 children in the fiscal year 1887, at \$200 each	6, 000, 000
25,000 children in the fiscal year 1888, at \$200 each	5, 000, 000

* * * At the end of the fiscal year 1888 there will have been discharged 20,000 children who will be able to care for and support themselves, and the total expense of the education of this number with those remaining in school will not exceed \$22,500,000, or about two-thirds the amount of money expended for the suppression of Indian hostilities during the years 1864 and 1865. Since 1872, a period of only ten years, the cost of Indian hostilities and military protection against the Indian is estimated by the military authorities at \$223,891,264.50, or an annual expense of \$22,389,126.45. To this must be added the yearly appropriation for subsistence, which averages about \$5,000,000 a year. * * * It is useless to attempt the civilization of the Indian through the agency of schools, unless a large number of children, certainly not less than one-half the total number, can have the benefit of such schools, and even then it is not wise to depend wholly on that agency. * * * It is believed that with an annual expenditure of between \$5,000,000 and \$6,000,000 during the next fifteen years for educational purposes of the character herein indicated, the danger of Indian outbreaks may be avoided and the great mass of Indian youths at least made self-supporting.

Such prudent advice falls short of practice for the lack of money, and the money is withheld because the people who elect the congressmen are indifferent and ignorant concerning the Indian and his needs. It is most fitting that at last this national interest and question has found its way before the educators of our country, for they have the power to spread knowledge and hasten the day of right doing toward the Indian race.

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SCHOOL SUPERVISION.

Mr. SMART moved that there be a recess of five minutes; which was then taken.

After this recess the president called for speakers on the subject of supervision in accordance with the following published programme :

SCHOOL SUPERVISION: SPECIFIC AIMS; METHODS EMPLOYED.

It is desired that each superintendent shall present a definite, brief statement as to what is made the leading aim in his supervision, with a very concise description of the most successful methods employed, the kind of supervision to be designated as State or general, city or graded schools, country or ungraded schools.

In order that there may be such unity in points considered as will allow an arrangement of the statements into topics, it is suggested that attention be given to the following:

(a) Mode of licensing teachers; (b) plan for determining the character of teachers' work; (c) number of departments in the schools; (d) how and by whom the fitness of pupils for promotion is determined; (e) frequency of promotions from grade to grade or school to school; (f) the chief means used for securing school attendance; (g) the practical results of compulsory education; (h) chief obstacles to successful results in the schools.

Mr. C. G. EDWARDS, of Baltimore, spoke as follows in reference to the question

HOW AND BY WHOM THE FITNESS OF PUPILS FOR PROMOTION IS DETERMINED.

Mr. PRESIDENT: The subject of promotions, although apparently simple, is in practice one of the most perplexing with which teachers and superintendents have to deal. There are various interests at stake, all of which must be taken into account. The welfare of the pupil is of course the paramount interest; but the teacher of the lower grade must be considered, and the teacher of the higher grade also, as well as the general good of the school regarded as an organic whole. The parent, too, will sometimes step in to complicate a question already complicated enough.

It would seem at first sight that the teacher who knows most about the pupil is the best qualified to determine his fitness for promotion, and this is the teacher of the lower grade. He (or shall I say *she*?) knows: the other can only *guess*. But in practice this opinion would undergo some modification. It would be found that teachers generally are apt to overestimate the attainments of their pupils. With the greatest honesty of purpose, they are apt to make mistakes, and the mistakes

are almost always in the same direction. And sometimes even honesty of purpose is wanting. A pupil is promoted, not because he is competent, but because he is troublesome. It is the easiest way of getting rid of him. And he may be promoted because he has been a long time in the grade and the teacher is ashamed to retain him longer. Promotions determined by the teacher of the lower grade are apt to be too numerous or too frequent; and injudicious promotions are injurious to the pupil and may be ruinous. •

On the other hand, if the promotions are determined by the teacher of the higher grade on questions prepared by this teacher, the chances are that some well prepared pupils will fail. It is a curious fact, which I am unable to account for, though it is within the experience of almost every principal teacher, that in such an examination one or two of the best pupils will fail and one or two of the worst will pass. This, however, is only a minor evil. The great objection, I might say the *fatal* objection, is that it leads to, produces, encourages, and almost necessitates cramming. The teacher below finds out or shrewdly guesses the line of examination and adheres closely to that line in teaching. You will say the teacher is not *obliged* to do so. But consider the circumstances. A teacher's ability and success are gauged by the number of pupils that he can "pass" to the grade above. This may not be fair; it is in many cases very unfair; but it is the fact; and as the teacher who studies the coming examination most closely, guesses it most accurately, and sticks to it most closely is sure to "pass" the greatest number of pupils, the temptation to "cram" is almost irresistible; and the more there is of cram the less there is of useful learning.

It thus appears that neither the teacher of the lower grade nor the teacher of the higher can be safely intrusted with the exclusive prerogative of determining what pupils shall be promoted. The objection against the teacher of the higher grade applies with equal or even greater force against the superintendent. But it seems to me to be possible to combine all three in such a way as to yield better results than can be had from any one separately.

The best proof of a pupil's having mastered one step in a series is his ability to take the next step. Indeed this is often the only genuine test. It is quite possible to teach one part of a subject in such a way as to unfit the pupil from pursuing it further. It is also possible to teach it in such a way as to yield no visible results on examination and yet to leave the pupil's mind in the best possible condition for continuing the study and prosecuting it successfully. It is this obligation, real or supposed, on the part of the lower teachers to produce some visible result, capable of being expressed in figures, that generates and perpetuates cram and is rapidly driving teaching from the field.

I would suggest, then, for the best interests of the pupil, and for the advancement of education and the destruction of cram and the encouragement of sound teaching, that promotions should be determined by

the teacher of the lower grade. I am aware that this privilege may be abused, and therefore some check must be provided. If the pupil promoted is unable to prosecute the studies of the new grade and if this inability is due to deficient preparation in the grade below, he must be remanded to that grade. But as such a course is surrounded with difficulties, it should not be taken except after mature deliberation. The two teachers should consult together on the matter, and if they cannot agree the advice of the principal or superintendent should be asked. In this way we obtain the advantage of the collective wisdom of the three persons best qualified to make a decision.

The great advantage of such a scheme as this is that it is a direct and powerful stimulus to the teacher, urging him to the best that is in him. For he will speedily discover that pupils who have learned the right use of their faculties can sustain themselves in the new grade, while those who have been only crammed are likely to fail. Self interest then works on the side of good teaching, and not, as at present, on the side of cramming. Some persons are afraid that, when the spur of examinations for promotion is removed, teachers may become careless. But the fear of having a pupil sent back is the strongest kind of stimulus, and it stimulates to *good* work and not to mere show. It is not necessary and would not be proper to give up the examinations. They would still be useful; but they would be shorn of their power to harass both teachers and pupils.

I can think, Mr. President, of no simpler or surer method of relieving teachers and pupils from the ill effects of our high pressure system than the plan I have suggested of giving to the teachers of the lower grade the power of making promotions at discretion, with the proviso that pupils may be returned if, after due trial, they are found unfit for the studies of the new grade.

Mr. SANFORD criticised the marking system, and believed that children should be examined from text books which they had not studied. Examinations are held periodically in Middletown, and the records are examined by the superintendent before promotion. It is not best to consign the matter of promotion to the teacher of the lower grade; this should be in the hands of the superintendent or competent principals.

General EATON said that the method of the examination has much to do with the place of the examination. The English have by their use of examinations made them an instrumentality of cramming; so much so that the very distinguished German school officer, Dr. Wiese, was startled to find the extent to which they had been pushed, and the result. The Germans employ examinations, but in such a way as to promote healthy growth. Great care must be used in conducting these tests. Teachers are too apt to mark pupils zero if a slight mistake is made.

Mr. SMART said that for six or seven years he had been a member of a board that has examined 120,000 teachers, 40,000 being rejected.

The same paper had been sent as a test to the ninety-two examiners composing the board in Indiana, and the valuation of the answers given had varied greatly. With a large number of examiners changing office frequently, it is impossible to secure uniformity. This subject needs careful study.

MR TAPPAN stated that the method he had adopted in examining teachers, and that was found to work well, was to mark those reaching a certain percentage as passing and those below a certain other percentage as failing, while all between were to be reëxamined.

DR. PATTON said that he found that many persons have a standard for colored students and colored teachers entirely different from the standard for white students and white teachers. Teachers sometimes mark colored pupils too high. This gives the pupils false ideas of their own attainments and of perfect recitations. There are several southern institutions whose college course is parallel with a normal course, save in a single year. These facts should be brought before the public, and especially the educational public, in such a manner as to secure a popular sentiment that would rectify these great evils.

COMPULSORY EDUCATION.

The president called upon Hon. Joseph White, ex-secretary of the State board of education of Massachusetts, to speak upon the practical results of compulsory education.

MR. WHITE stated that practically he was pretty familiar with the question; that he had long ago reached the conclusion that a good deal of money was lost to the State and much trouble caused by reason of the irregular attendance and the non-attendance of large numbers of pupils. No school system can be successful which does not secure the regular attendance of a preponderating majority of the children.

A law was passed in Massachusetts requiring the attendance of all children of school age for at least twelve weeks in the year. Afterwards a law was passed compelling guardians to send their children to school for twenty weeks in the year, each ten weeks to be continuous. Most of the schools are taught forty weeks in the year. In the country the aim has been to secure schools of thirty-six weeks in the year, divided into three terms; that is as good an arrangement as can be made in the rural towns. The chief difficulty in the way of regular attendance occurs with reference to manufacturing establishments. In one town an arrangement was made with the manufacturing agents by which they took a number of pupils at one time and then took another class, and this plan worked very well. Mr. Marble is here, who devised one of the best systems for his own city, Worcester, and he can speak with accuracy on these points.

The result of this compulsory law is that the attention of the people of the Commonwealth is turned to the business of educating their chil-

dren, and they are made to feel the responsibility of it. This law applies to children between eight and fifteen, and is substantially carried out throughout the State.

Mr. MARBLE said that when the law was changed copies were printed and sent to the various manufacturing establishments. The requirement is that all children between the ages of eight and fourteen shall attend school twenty weeks, and that the employers of children shall never engage a child under ten years of age; also, that an employer shall have in his possession a certificate for every child employed stating the amount of school attendance the preceding year, if the child is under fourteen, or that the child is fourteen or more years of age. In the larger cities truant officers are employed; they look up children who are absent from school, and also examine the various manufactories periodically to see if children are employed contrary to law. The bare fact of the employment of children under 16 years of age without a certificate of the school committee is prima facie evidence, and the employer can be fined \$20 to \$50 and costs for each case. A fine of \$50 may also be imposed on the parent.

Mr. SANFORD asked what was done with the street hoodlums.

Mr. MARBLE replied that children who are found wandering about the streets and public places and growing up in ignorance are regarded as vagrants; they are found by the truant officers and taken to school. If the scholar should not attend school regularly, after two or three days he is admonished in a solemn and impressive tone of voice; sometimes this has to be repeated. At length, after a period which is to be determined by the school authorities, the boy is arrested for truancy and is sent to the truant school for a term of six months to two years. This truant school is a wing of the almshouse. In the city of Worcester, with a population of 67,000, there are 8 boys at present in the truant school. Very few of those inclined to truancy need to be sentenced to the truant school.

Mr. HARRINGTON inquired whether the boys in this school come in contact with the people in the almshouse.

Mr. MARBLE replied, "Not at all."

Mr. NEWELL asked how much truth there is in Governor Butler's statement of the illiteracy in Massachusetts.

Mr. WHITE replied that it is not becoming to criticise the "supreme executive" of the Commonwealth. The amount of illiteracy had been found years ago to be .057, and according to some recent statement it is less than .060 now, just about enough to cover those who are utterly incapable of learning—idiots, &c.

Mr. SMART said that, of course, a large proportion of the illiterates are foreigners who came to this country too late in life to derive benefit from the schools.

General EATON expressed a desire to hear from Mr. Marble in refer-

ence to Canadian immigration to Worcester and its effect on the schools.

Mr. MARBLE replied that there are 4,000 French Canadian residents in Worcester, a certain proportion of whom are permanent residents and good citizens, and certain others who come to the city for the summer and work in brickyards and similar places and as soon as they earn a few hundred dollars return to Canada. The French Catholic priest has done a great deal towards nationalizing these people. He has invited the superintendent of schools to visit the schools conducted for them, at any hour of the day. In all the parochial schools of the city there are 1,500 pupils, and these pupils receive certificates from the school committee on the same plan as the pupils of the public schools.

CHIEF OBSTACLES TO SUCCESSFUL RESULTS IN THE SCHOOLS.

In reference to this subject, Mr. NEWELL said :

In speaking of successful results from our public school system, there are really two questions involved : we may consider results in quantity or results in quality. We may inquire, in the first place, what are the obstacles which have prevented the universal spread of education throughout the country by means of public schools ? Why is the number of children who are not in our public schools so large ? In the next place, we may inquire as to results in quality. Are the pupils of the public schools as well educated as they ought to be ? If not, what are the obstacles that prevent the schools from doing better work ? Among the obstacles which impede the more general diffusion of education by means of our public schools, I mention, in the first place, the indifference of parents. The remedy in this case would seem to be what is termed "compulsory education," and it is the remedy which many educational doctors would prescribe ; but for my part I am not able to see this matter exactly in the same light as the "doctors." I have no confidence in law unsupported by public opinion. I have great doubts of the efficacy of law to make people religious, or temperate, or learned. There are cases where the state must intervene for the protection of children against their parents ; but these are exceptions. As a rule, we must assume that parents do not wish to injure their children. I would employ the missionary before calling in the constable to school.

Another obstacle to the universal spread of public schools is the disaffection of a considerable minority of our population to the whole scheme of secular education. These persons think that a school system which is exclusively secular is dangerous, and that there must be a certain admixture of religious instruction in order to make reading and writing safe acquisitions for the masses of the people. It is hardly worth while to dwell on this point. If the church will educate the children, let the church educate them. The catechism will certainly do no harm. If, however, the church does not educate the children, then it is the business of the state to step in and do the work.

It is said that nothing succeeds like success; but the greatest obstacle, in my opinion, in the way of the universal spread of elementary education is the amount of success which the public schools have already had. The apparent paradox can be easily explained. That which is common is apt to be neglected. Fifty years ago, to be able to read and write well was a distinction to mark a man in his community; he was so much more able as a workman and so much better as a citizen that all men took knowledge of him that he had been to school. But education is a great leveller; and it has levelled not only by filling up the valleys but by cutting down the hill-tops. We have more readers than any other country in the world and fewer thinkers in proportion to the number of readers. As long as it was evident that it was a great advantage to be something of a scholar, parents were anxious to send their children to school and to college, but education has now ceased to be a distinction and many wealthy parents are unwilling to send their sons to college, as many poor parents are indifferent about sending their children to the common school.

In the next place I will say that our public school system has not that elasticity and that adaptability, that power to meet emergencies, which will produce rapid and permanent results. Go back for half a century and you will find that our schools were organized for the purpose of supplementing existing deficiencies. A large number of people who were living in comfortable circumstances sent their children to private schools, but there was a great mass who got no schooling at all. The new public schools took in these neglected masses and gave them an elementary education. At first the course of instruction was very elementary indeed, but by degrees the standard was raised; the public school tried to be as good as the private school; it succeeded; then it tried to be better than the private schools; it succeeded; but the very success tended to remove it further from the very class of children for whose benefit it was originally established. Theoretically, the public school is for all; practically, it is conducted with less regard to the very lowest stratum of society than is desirable.

Our public schools are now the best schools to be found, but they are surrounded by a set of rigid rules, customs, and traditions which have a tendency to keep out the very children that these schools were established to educate. Take one of our ordinary rules, that the child who has been absent from school two days in any week or four days in any month shall be suspended—that is to say, be driven out of school. Because for some reason or other he has not been able to take the *full* advantage of the school, our rule says he is to have no advantage at all. Surely the proper function of the school is to gather the children in rather than to drive them out. I say, then, in a general way, that our school systems need to have a little more adaptability to the conditions in which we are now placed. Much injury results from the dissociation of education and labor under our present system, two things which

God has joined together and which man ought not to put asunder. I believe that a child needs to learn to drive a nail just as much as he needs to learn to read a newspaper. In some way this deficiency must be remedied, if elementary education is to be made universal.

In the second place, looking to the quality of the education given in our public schools, the great obstacle to perfect success is the lack of trained teachers. Not one in ten of the teachers of the United States has received any special education or training to fit him for his business. Those who are long enough at work learn something: some of them learn very little.

And then there is another lack, the want of skilled supervisors who might, to a certain extent, make up for the lack of trained teachers. Here and there we have a competent and well trained superintendent, but often that trained and competent superintendent is neutralized by his committee, and, instead of being able to do what he knows is right and good and useful, he has to spend his days and nights in trying to do just as little harm as possible. The very selection of our school books is often left to men barely capable of reading one of them from beginning to end. If any good results in the near future are to be achieved in connection with our public school work, it must be by leaving the practical management of our schools to men who are experts in their profession. It is as ticklish work as ballooning, and requires just as much nerve as to attack a battery.

I will mention only another obstacle; it is, perhaps, not so much of an impediment after all, for it sometimes does as much good as harm. I refer to what I may call the destructive criticism that meets us in our newspapers and in some of our periodicals and other publications. No school man objects to criticism; he welcomes it. No school man objects very strongly even to unfair criticism; provided that the facts are accurately stated, we can make allowance for the wrong deductions. I refer to the kind of criticism which says "this is all wrong" and never gives you a hint as to how to make it right — the criticism of Gail Hamilton, for example, the criticism of Richard Grant White, and of General Butler. Your high schools, they tell you, are all wrong; but nobody has ever proposed to do away with the high school. You are cramming the children with useless technical knowledge, they say; but they do not tell you how to avoid the cramming. This is the work which is good for pulling down and not for building up. I can say as hard things about our public school system as, I think, any man here, but then I hope I have something to suggest in place of what I have criticised.

Having dwelt so largely on the obstacles which our public school system has to contend against, I may say, in conclusion, that I do not consider them, on the whole, to be very formidable. They will not stop the car of progress, and they can hardly retard it very much. Notwithstanding the indifference of parents, the opposition of the church, the *rigidity and inelasticity* of our system, notwithstanding our lack of

trained teachers and competent supervisors, the public schools are making progress and will continue to make progress. I have an abiding faith in their ultimate and permanent success.

Mr. PICKETT enforced the necessity of the proper inspection of schools, and **Mr. WHITE** spoke of the excellent results accomplished by women as members of school committees in Massachusetts.

CONCLUSION.

Mr. JONES introduced the following, which was unanimously passed:

Resolved, That the press of Washington be tendered the thanks of the department for the full reports given to the public.

General EATON called attention to the Holland Exhibition, and expressed a hope that American education would be well represented.

On the motion of **Mr. MARBLE**, the department then adjourned to meet with the National Educational Association at Saratoga on the 9th of July.

1. The first part of the document is a list of names and dates.

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CIRCULARS OF INFORMATION

OF THE

BUREAU OF EDUCATION.

No. 4-1883.

**RECENT SCHOOL LAW DECISIONS: COMPILED BY
LYNDON A. SMITH, A. B., LL. M.**

**WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1883.**

5032

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LETTER.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., October 5, 1883.

SIR: The leading courts of the various States render many opinions in which general principles of law intimately affecting school officers and educational interests are discussed and determined.

A knowledge of the points decided in these opinions must tend to expedite school business and diminish future controversies. For this reason and in response to a popular demand for such information, I assigned to Lyndon A. Smith, esq., an employé of this office and a member of the city bar, the collection and compilation of recent decisions and discussions most pertinent to school affairs.

The cases cited have been decided since the beginning of my present term of office. The principal questions of school law have been before the courts during this time, and their determination is usually stated as briefly as possible in the compilation. Quotations from earlier cases, from text books, and from State statutes are given in foot notes where a peculiarly important point has seemed to need further explanation. Decisions concerning school lands, rules of evidence, and court practice have not been included.

This document is of value chiefly as supplementing State school laws, which are generally distributed by the States to school officers and contain the ordinary rules for official action; but statutory provisions are excellently illustrated, explained, and interpreted by judicial decisions and opinions. The table of cases is arranged so that a list of those which have been decided in any State can be easily distinguished.

I hereby recommend the publication of this compilation as a circular of information.

I have the honor to be, very respectfully, your obedient servant,

JOHN EATON,
Commissioner.

The Hon. SECRETARY OF THE INTERIOR.

Publication approved.

H. M. TELLER,
Secretary.
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RECENT SCHOOL LAW DECISIONS.

CHAPTER I.—POWERS OF LEGISLATURES.

§ 1. Powers of legislatures to establish schools and school systems.—The constitutionality of legislative statutes is often inquired into by the courts. A statute will not be construed as unconstitutional if, by any fair and rational construction, it may be brought within the constitutional power of the legislature.¹ In the absence of any constitutional prohibition the whole matter of the establishment of public schools, the course of instruction to be pursued therein, how they shall be supported, upon what terms and conditions people shall be permitted to participate in the benefits they afford—in fine, all matters pertaining to their government and administration come within the range of proper legislative authority.² Directions in a constitution that the legislature shall provide “for the establishment of a thorough and efficient system of free schools” and “for the organization of such institutions of learning as the best interests of general education in the State may demand,” give that body power to create independent school districts without the assent of the citizens residing therein, to authorize the election of a board of education by the qualified voters of the district, and to give the board power to make annual levies for buildings and the support of schools.³ Where school laws are passed to “secure a thorough and efficient system of common schools throughout the State,” they are of a general nature; and a special act relative to a school district is prohibited by a further provision of the constitution that “All laws of a general nature shall have a uniform operation throughout the State.” The court said:⁴ “It was a wise provision in the constitution that the system of common schools should be controlled and governed by general law, so that the whole State may enjoy the benefits of the best system which the experience and wisdom of the legislature can devise. It does not require a prophetic eye to see that local legislation to suit the views of this locality and of that would soon impair the efficiency of our public schools; that, while in some places they might be elevated, in others they would be degraded. True, in some localities, from density of population and other causes, different necessities may exist requiring modi-

¹ *Arrington v. Cotton*, 1 *Baxter* (Tenn.), 316; *Opinion of Justices*, 68 Me., 562.

² *Curryer v. Merrill*, 25 Minn., 1; s. c., 33 Am. Rep., 450.

³ *Kuhn v. Board of Education*, 4 W. Va., 499.

⁴ *State v. Powers*, 38 Ohio St., 54, 64.

fications in the management of schools in order to attain the greatest efficiency; but for all such cases ample provision can be made by judicious classification and discrimination in general laws."

§ 2. *Same.*—High schools may be established when there is a provision of the constitution directing the legislature to provide a thorough and efficient system of free schools for the conferring of a good common school education¹ and when their existence is in accordance with the educational policy of a State.² Normal schools may be provided, though a State constitution mentions only free schools and a university. In an opinion maintaining this ground, Judge Krekel said:³ "The constitution having vested all legislative power not prohibited by the Constitution of the United States in the general assembly, the establishing of normal or other schools than those named, it is fair to presume, was intended to be left with the legislature. That normal schools are public institutions, useful and necessary for the full development of free schools, is not disputed." When the legislature has placed the management of the public schools under the exclusive control of directors, trustees, or boards of education, the courts have no authority to interfere in matters of instruction,⁴ nor will they consider a statute unconstitutional which imposes upon a State superintendent quasi-judicial powers, such as authority to hear appeals from the decisions of township boards respecting the division of school districts.⁵ The legislature may maintain schools for a longer period than the time required by the constitution. The specifying of time does not negative the right of the legislature to provide for maintaining schools longer.⁶ Though there is a clause in the constitution prescribing a uniform system of public schools, a legislature may organize various kinds of school districts, such as independent, special, and common school, and may prescribe text books for their schools, uniform only for a single class of districts.⁷

§ 3. *Power of legislature to establish reform schools and authorize commitments.*—The establishment of reform and industrial schools is proper, and the commitment to them of specified classes of pauper, disorderly, and vagrant children does not involve any improper interference with the relation of parent and child, nor imprisonment such as ought not to be inflicted except for crime.⁸ In an elaborate opinion, Ryan, C. J., said:⁹ "We cannot understand that the detention of the child at one of these schools should be considered as imprisonment any more than its detention in the poorhouse, any more than the detention of any child

¹ *Richards v. Raymond*, 92 Ill., 612.

² *Stuart v. School District No. 1 of Kalamazoo*, 30 Mich., 69.

³ *Briggs v. Johnson County*, 4 Dillon (U. S. C. Ct.), 148.

⁴ *Board of Education of Cincinnati v. Minor*, 23 Ohio St., 211; s. c., 13 Am. Rep., 233.

⁵ *State v. Whitford*, 54 Wis., 150.

⁶ *Sharp v. Miller*, 65 Mo., 50.

⁷ *Curryer v. Merrill*, 25 Minn., 1.

⁸ *Milwaukee Industrial School v. Supervisors*, 40 Wis., 328.

⁹ *Ibid.*, 337, 339.

at any boarding school standing for the time *in loco parentis* to the child. Parental authority implies restraint, not imprisonment; and every school must necessarily exercise some measure of the parental power of restraint over children committed to it. And when the State, as *parens patriæ*, is compelled by the misfortune of a child to assume for it parental duty and to charge itself with its nurture, it is compelled also to assume parental authority over it. This authority must necessarily be delegated to those to whom the State delegates the nurture and education of the child. The State does not, indeed we might say could not, intrude this assumption of authority between parent and child standing in no need of it. It assumes it only upon the destitution and necessity of the child, arising from want or default of parents. And, in exercising a wholesome parental restraint over the child, it can be properly said to imprison the child no more than the tenderest parent exercising like power of restraint over children.

"When a parent or other proper guardian should be able to show that the disability or default on which the child's commitment proceeded was accidental or temporary and no longer exists, and that he is * * * not otherwise unsuitable for the custody of the child, his right to the custody should prevail over the commitment to which he was not a party."

§ 4. Powers of legislatures to control public school districts and corporations.—As the legislature can establish school districts, so it can change or abolish them. The inhabitants of a school district have no rights in the existence or in any of the corporate functions of the district which can be regarded as vested rights or which can be set up as beyond legislative control.¹ This question arose in Massachusetts in consequence of the enactment of statutes abolishing school districts and creating town systems. The court decided that the statutes were not unconstitutional as taking the property of districts without compensation or as impairing the obligation of contracts.²

"Before their enactment," said Colt, J.,³ "school districts were indeed *quasi*-corporations, with the power to hold property, to raise money by taxation for the support of schools, and with certain defined public duties. But they were public and political as distinguished from private corporations, and their rights and powers were held at the will of the legislature, to be modified or abolished, as public welfare might require. The property held by them for public use was subject to such disposition in the promotion of the objects for which it was held as the supreme legislative power might see fit to make. The laws in question

¹ Farnum's petition, 51 N. H., 376. In this case the legislature, within a month after the location of a school-house "for five years," provided for an appeal from the action of the committee that had located it. See, also, *Mobile School Commissioners v. Putnam*, 44 Ala., 506.

² *Rawson v. Spencer*, 113 Mass., 40.

³ *Ibid.*, 45.

do nothing more; they provide for the transfer of public property and of a public duty connected with its use from one public corporation to another." The debts of such abolished districts may be imposed upon the town.¹ The legislature has powers over a State university similar to those over school districts. Though it has appointed trustees for the institution it may, through agents other than the trustees, sell and dispose of the property of the university, or at pleasure amend or even repeal the charter, as public policy or the interests of the university may require.² It can discharge at any time a professor who has been employed for a specified time "subject to law." In delivering the opinion of the Supreme Court of the United States in this case Mr. Justice Hunt said:³ "That he and his office and contract were subject to the laws in existence at the time of making it was sufficiently evident without any declaration on the point. All persons and all contracts are in that condition. But that he would be subject to future legislative action, to the extent of an immediate removal and without cause, was not so evident. It was to make that point clear, and for no other purpose, that his employment for six years * * * was declared to be 'subject to law.'"

§ 5. Powers of legislatures respecting taxation and appropriations.—The power to tax falls naturally, and usually by constitutional allotment, to the legislature, and it cannot delegate this power to another body, as, for example, to city school authorities, except by permission given or implied in the constitution.⁴ The question arose in Maine whether the legislature had authority to assess a general tax on the property of the State for the support of common schools. The opinion of the justices of the supreme court was asked. They said that, education being of benefit to the people and taxation being incidental and essential to its successful promotion, the tax for educational purposes must be regarded as constitutional, inasmuch as it was not repugnant to the constitution and was authorized by the grant to the legislature of "full power to make and establish all reasonable laws and regulations for the defence and benefit of the people of this State."⁵ A legislature cannot authorize a school district to levy taxes for other than educational purposes. On this ground the several provisions of an act which authorized the trustees of schools in townships in Illinois to hold an election, subscribe for stock, and issue and deliver bonds to aid in the construction of railroads, and the voters in such township to vote in favor of such subscription, have been declared unconstitutional.⁶ Though the constitution

¹ *Whitney v. Stow*, 111 Mass., 368.

² *Illinois Industrial University v. Champaign County*, 76 Ill., 184. See, also, *Weary v. State University*, 42 Iowa, 338.

³ *Head v. The University of Missouri*, 19 Wall., U. S., 526.

⁴ *Lipscomb v. Dean*, 1 Lea (Tenn.), 546; *Waterhouse v. Cleveland Public School Board*, 9 Baxter (Tenn.), 398; *City of Fort Worth v. Davis*, 57 Texas, 225. See *State v. Bremond*, 33 Texas, 116.

⁵ Opinion of Justices, 68 Me., 582.

⁶ *Trustees of Schools v. People ex rel. T., W. and W. Railway Company*, 63 Ill., 299.

prohibits the application of more than a specified portion of the general revenue to school purposes, the legislature may set apart for the same object special taxes, such as a dog tax or license fees.¹ A license fee is not a tax.² A constitutional limitation of a school tax is self-executing,³ but a proviso permitting the tax to be increased under certain circumstances requires legislation to put it into operation.⁴ A legislature can and ought to provide for the support of normal schools which it has lawfully established, and whose support has failed through the unconstitutional appropriation of a part of the revenue of the common school fund for their maintenance.⁵ Rapallo, J., said:⁶ "By establishing them and inducing contributions from others for that purpose, it assumed the duty of supporting them, and if the particular provision which it has attempted to make for such support is objectionable it must be assumed that the legislature will regard it as their duty to provide a substitute."

§ 6. **Power of legislatures over school funds.**—The diverting, by a statute or by a city ordinance, of any part of the school fund provided by the constitution of a State to other than the purposes specified therein is unconstitutional and void.⁷

For this reason the respective acts or parts of acts have been declared unconstitutional which provided for the purchase with school moneys of a State history for each district not voting against receiving it,⁸ which allowed a pro rata share of the money received from the common school fund to be paid for pupils in a private school,⁹ which gave to counties money which had become a part of the general school fund through their failure to draw it in the way prescribed by the constitution,¹⁰ which authorized the president of an academy to receive half the public moneys due a common school which was given into his charge,¹¹ and which appropriated common school revenues to normal schools.¹² A legislature may direct that school funds may be used in the payment of overdue claims.¹³ A complaint that the legislative power as exercised in the expenditure of the school fund provided by the constitution is unwarranted will not be heard from one receiving a full share of the benefits of that fund.¹⁴

¹ *Ex parte Cooper*, 3 Texas App., 489.

² *East St. Louis v. Trustees of Schools*, 102 Ill., 489.

³ *St. Joseph Board of Public Schools v. Patten*, 62 Mo., 444.

⁴ *State v. St. Louis, Kansas City and Northern Railway Company*, 74 Mo., 163.

⁵ *Gordon v. Cornes*, 47 N. Y., 608.

⁶ *Ibid.*, p. 617.

⁷ *People v. Allen*, 42 N. Y., 404; *Yazoo City v. State*, 48 Miss., 440.

⁸ *Collins v. Henderson*, 11 Bush (Ky.), 74.

⁹ *Otken v. Lamkin*, 56 Miss., 758.

¹⁰ *Auditor v. Holland*, 14 Bush (Ky.), 143.

¹¹ *Halbert v. Sparks*, 9 Bush (Ky.), 259.

¹² *Gordon v. Cornes*, 47 N. Y., 608.

¹³ *State v. Cobb*, 8 Richardson (S. C.), 123.

¹⁴ *Marshall v. Donovan*, 10 Bush (Ky.), 681.

CHAPTER II.—SCHOOL DISTRICTS.

§ 7. *Organization of districts.*—The legal organization of a school district will be presumed after it has enjoyed the franchises and privileges of a regularly organized corporation for a considerable time.¹ In Michigan the legislature has recognized this principle, and has not only deemed it important that the power of school districts should not be questioned after any considerable lapse of time, but has even established what is in effect a very short act of limitation for the purpose.² It is too late to revive proceedings against the formation of a district after its organization has been completed, a tax voted, and a contract made for building a school-house, and interests have been established which cannot be overturned without public inconvenience and injury and private damage.³ In a Missouri case Vories, J., said:⁴ “The evidence shows that this sub-district had been organized, conducting business of every kind pertaining to such an organization for thirteen years. This, we think, was sufficient to show that such a district existed in fact, without showing their organization by record evidence.” Where a complainant employed a dilatory remedy against the organization of a district, neglecting a speedy one, and the district had consequently enjoyed its franchises five years, the court refused to review its organization.⁵ The legality of organization cannot be collaterally attacked if a district exists in fact and is in full exercise of corporate powers.⁶ Judge Campbell, of Michigan, said:⁷ “It would be dangerous and wrong to permit the existence of municipalities to depend on the result of private litigation. Irregularities are common and unavoidable in the organization of such bodies, and both law and policy require that they shall not be disturbed, except by some direct process authorized by law, and then only for very grave reasons.” A new organization is not necessary when one district is enlarged by the addition of the whole or part of another.⁸ The incorporation of a village constituting a part only of a school district creates, by operation of law, a joint village and township district.⁹ The creation of new school districts from territory lying in different towns must be by the coöperation of the towns in their corporate capacities after due notice to the inhabit-

¹ *Stuart v. School District No. 1 of Kalamazoo*, 30 Mich., 69.

² *Ibid.*, 73, Comp. L. 1871, § 3591: “Every school district shall, in all cases, be presumed to have been legally organized when it shall have exercised the franchises and privileges of a district for the term of two years.” The limit is placed at one year in Nebraska. See *State v. School District 24 of Adams County*, 13 Nebr., 78.

³ *Parman v. School Inspectors*, 49 Mich., 63.

⁴ *Rice v. McClelland*, 58 Mo., 121.

⁵ *Lord v. Every*, 38 Mich., 405.

⁶ *Stockle v. Silsbee*, 41 Mich., 615.

⁷ *Clement v. Everest*, 29 Mich., 19, 22.

⁸ *Greenbanks v. Boutwell*, 43 Vt., 207; *State v. Gibbs*, 25 Ohio St., 256.

⁹ *State v. Wolfrom*, 25 Wis., 468.

ants.¹ In Missouri it is the duty of township boards of education, in organizing a subdistrict lying in different townships, to meet together and so effect its organization; and action by one board alone will not suffice, although other boards may have relinquished their right to the territory under consideration.² The courts will not supervise the action of authorized school officers in dividing a township into school districts, unless it appears that they are acting corruptly or from improper motives or that the division is grossly unequal and unjust.³ Where a township system of schools has superseded a district system, a vote to reestablish the school district system reestablishes the several districts as they were when the township system was adopted. A district which had constituted with another district in an adjacent town a union district is revived as it was before its union.⁴

§ 8. **Alteration of districts.**—School districts exist only by authority derived from the legislature. After they have been created and invested with the rights, privileges, and powers incident to that class of corporations to which such districts belong, the legislature may put an end to their corporate existence and take away or modify all the school rights and privileges the inhabitants before possessed.⁵ An order altering a school district, though irregular, is binding upon subordinate officers and persons on whom it operates until reversed by regular proceedings.⁶ The incorporation of a village does not remove it from the school jurisdiction of the township,⁷ nor does the extension of the territorial limits of a municipality enlarge the school district previously existing within it.⁸ When a district is divided a different part cannot be set off than that specified in the warrant for the meeting at which the division is made.⁹ Where a new school district is created out of a portion of an old one, it is entitled to a pro rata share of the State appropriation for school purposes for the current year.¹⁰ It cannot make an agreement with the old district for a disposition of property contrary to that provided for by law.¹¹ It is to be presumed by a court that the tribunal to which is intrusted the power of changing the lines of school districts will examine carefully into all the equities of each case; that the private rights and interests to be affected by their action, as well as the public convenience and welfare, will receive due consideration and regard.¹²

¹ *Butterfield v. Dist. 6 of Prospect*, 61 Me., 583.

² *Smith v. Township Board of Education*, 58 Mo., 297.

³ *Thompson v. Beaver*, 63 Ill., 353; *Directors, &c., v. Trustees, &c.*, 66 Ill., 247.

⁴ *Sutton Manufacturing Co. v. Sutton*, 108 Mass., 106; *Perkins v. Crocker*, 109 Mass., 126.

⁵ *Farnum's petition*, 51 N. H., 376.

⁶ *Rawson v. Van Riper*, 1 N. Y. Sup. Ct., 370.

⁷ *Cist v. State of Ohio*, 21 Ohio St., 339.

⁸ *State v. Ind. School District*, 46 Iowa, 425.

⁹ *Butterfield v. School District No. 6 of Prospect*, 61 Me., 583.

¹⁰ *Lower Allen School District v. Shiremanstown School District*, 91 Pa. St., 182.

¹¹ *People v. Dodge*, 4 Nebr., 265.

¹² *Fifield v. Swett*, 56 N. H., 435. See § 15, *post*.

The portion of a divided district which obtains the school-house ought to contribute to the erection of one in the other portion.¹

§9. **Powers of districts.**—The powers of school districts are those belonging to the most restricted quasi-corporations. They have corporate existence by force only of their public functions.² They are primarily political subdivisions and agencies in the administration of civil government,³ and not corporations within the reason or meaning of a constitutional inhibition against special acts “conferring corporate power.”⁴ Neither are they municipal in their nature or purpose;⁵ but they are so far municipal that they cannot be garnished,⁶ even by their own consent, unless the debtor also consents.⁷ The principal acts they may perform are the establishment of schools, the erection of necessary buildings, the raising of money for school purposes and its expenditure for the same.⁸ A district may unite with other parties in the erection of a building, one part to be owned by the district as a school-house and the other part to be owned by the other party and used for purposes disconnected with the schools of the district.⁹ The nature of the building a school district may erect and whether or not it may include a hall were discussed in a Vermont case by Barrett, J., as follows:¹⁰ “While, therefore, for the legitimate and proper purposes of a district school, the district might make as part of its school-house more or fewer rooms, and for more or less use, and different rooms for different uses, nevertheless it would not be competent for the district, in connection with the construction of a school-house, and, as a part of the structure, to make lofts or rooms that were not designed nor needed for use in connection with and for the accommodation of the schools of the district. In the present case, if the hall was designed to accommodate the schools and the inhabitants of the district for the purpose of examinations and exhibitions and other such things as are proper and customary in connection with district schools, and it was adopted in that view, the purpose was legitimate and within the province of the district to carry out by making the hall. On the other hand, if the view and purpose were not such, but the design was to use the occasion of building a school-house as a pretext for making a public hall for town meetings, religious meetings, lectures, concerts, dances, picnics, and the other uses to which such halls are ordinarily

¹ School District v. Board of Education of Lamar, 73 Mo., 627.

² Stroud v. Stevens' Point, 37 Wis., 367.

³ Beach v. Leahy, 11 Kans., 23, 29.

⁴ State v. Powers, 38 Ohio St., 54.

⁵ People v. Trustees of Schools, 78 Ill., 136.

⁶ Fleishell & Kimsey v. Hightower, 62 Ga., 324; Hightower v. Slayton, 54 Ga., 108; s. c., 21 Am. Rep., 273.

⁷ School Dist. No. 4 of Marathon v. Gage, 39 Mich., 484.

⁸ People v. Trustees of Schools, 78 Ill., 136. See § 34, 35, *post*.

⁹ Eddy v. Wilson, 43 Vt., 363.

¹⁰ Greenbanks v. Boutwell, 43 Vt., 217.

put, then the district was doing what it had no lawful authority to do. If, again, the hall was designed and adapted to serve the interests of the district in respect to its schools, the making of the hall would not be rendered illegal if, when not wanted for school purposes, the district should permit it to be used for other purposes, having no relation to the schools.

"We think it best to say further that, in the building of a school-house to serve present needs, it is entirely proper for the district to have a wise and prudent forecast as to its prospective needs; and in serving present needs it would be proper to go beyond the immediate necessity, and make reasonable provision for what the district seems likely soon to need for the service and accommodation of the increasing population and scholars. Common providence and the obvious dictates of economy may often require this."

§ 10. *Same*.—A school district may accept a bequest which does not materially increase its burdens.¹ It may lawfully recognize and pay equitable claims, though they are not legal demands.² Being vested with powers coextensive with the duties imposed upon it by statute or usage, it may do so reasonable an act as to execute a promissory note for a debt legally contracted for the benefit of its property or for money borrowed³ (if it has power to borrow), but the note is not governed by the law merchant; an assignee takes it subject to all defences.⁴ The payment of such a note cannot be resisted on the ground that it was given for unnecessary furniture purchased at an exorbitant price, unless fraud is shown and an offer is duly made to return the goods.⁵ A school order does not possess the characteristics of negotiable paper.⁶ The supreme court of Pennsylvania gave the following opinion on this point:⁷ "Orders drawn by a president of a board of school directors on the treasurer of a school district, under the school law, are not negotiable bills or orders, but mere warrants for the payment of money to the persons to whom they are issued, to be disbursed by the treasurer under authority of law. They therefore do not authorize a subsequent holder to maintain suit in his own name, as upon a promissory note, bill, or order. They do not possess the ordinary properties of a mere contract, but are a statutory means of drawing the public money out of the hands of the legal custodian of the funds of the district." The power to bor-

¹ *Maynard v. Woodward*, 36 Mich., 423.

² *Stockdale v. Wayland School District*, 47 Mich., 226. See, also, *Greenbanks v. Boutwell*, 43 Vt., 215.

³ *Whitney v. Stow*, 111 Mass., 368.

⁴ *Sheffield School Township v. Andress*, 56 Ind., 157. See *Merrill v. Town of Monticello*, 14 Fed. Rep., 628.

⁵ *Johnson School Township v. Citizens' Bank*, 81 Ind., 515.

⁶ *National Bank of Mt. Pleasant v. Ind. District*, Marshall, 39 Iowa, 490; *Ohio ex rel. Steinbeck v. Treasurer of Liberty Township*, 22 Ohio St., 144.

⁷ *First National Bank of Northumberland v. Rush School District*, 81 Pa. St., 307, 310.

row money, given expressly and without direction or restraint as to the mode of doing it, implies everything necessary to make that power effectual or requisite to attain the end in view, and authorizes the issuing and sale of school district bonds.¹ In another similar case in Nebraska the court said:² "The power to borrow necessarily implies authority to determine the time of payment and the character of the evidence of indebtedness that will be issued, whether in the form of notes or bonds payable in the future. The fact that the bonds were sold on the market, instead of being given to the person furnishing the money, does not make them illegal. The object of the law was to enable school districts to raise means to build school-houses therein. This being the object it was to be attained in the best practicable method. These districts, many of them on the frontier, with but little taxable property therein and no capital to be invested in loans, would have been unable for years to have effected a loan unless they had pursued the course adopted in this case, namely, issued their bonds." Bonds issued to facilitate the erection of a school-house are not invalidated by the facts that the site for it is undesirable and that their issuance was refused at a meeting held shortly before the one at which they were voted.³

§ 11. **District meetings.**—District meetings should be held after due notice and conducted according to legal forms.⁴ The notice of a school meeting should be exact and explicit, and broad enough in its terms to include the business actually done.⁵ Special meetings must be called by the proper officers regularly convened;⁶ the notice of an annual meeting may be given by two of three directors.⁷ When the date of the meeting is prescribed by statute, all are bound to take notice of it, and it need not be specified in the warning.⁸ If the hour of meeting is fixed by statute, a meeting called later in the day is illegal. Trustees have no power to order an election at another time than that authorized by

¹ State v. School District 24 of Adams Co., 13 Nebr., 78.

² State v. School District 4, 13 Nebr., 82, 88.

³ Taylor v. Brownfield, 41 Iowa, 264.

⁴ In some States much of the business of school districts is directly voted upon by the electors; in others it is conducted by trustees, directors, or other officers. The meetings of the electors are considered here; those of officers are treated of in § 32, *post*. The formalities of school meetings are determined by statute and vary greatly in different States. Consequently, few decisions have extra-State application.

⁵ See Wiley v. Wilson, 44 Vt., 404; State v. Hurff, 38 N. J. L., 312.

⁶ State v. School Trustees, 43 N. J. L., 358.

⁷ Holland v. Davies, 36 Ark., 446. Apparently a more formal notice is required for a special than for an annual meeting. The customary regulations respecting the calling of a special meeting are given by Judge Cooley, in his work on Taxation, page 246: "That the meeting shall be called by the officers of the municipality either on their own motion or on the application of a certain number of the voters or freeholders; that it shall be notified either by a warning delivered or its contents stated to the several voters, or by notice published or posted in a manner particularly indicated by the statute; and that the subjects to be considered at the meeting shall be specified in the warning or notice."

⁸ Hodgkin v. Fry, 33 Ark., 716.

law.¹ A question as to whether a notice was given in due time may be settled by parol evidence, there being no date upon the notice.² In New Hampshire a meeting cannot act excepting on articles distinctly stated in the warrant.³ In New Jersey a greater sum of money cannot be raised than is designated in the warrant.⁴ A mere irregularity in conducting a meeting will not authorize judicial interference with its proceedings.⁵ Strict proof of the regularity of proceedings authorizing money to be collected cannot be required of a district by a defendant who has wrongfully received a portion of it.⁶ It is no objection to an appropriation for a specified object that it was made at a special meeting duly called, after the same appropriation had been refused at the annual meeting.⁷ Bonds issued in accordance with proceedings at a meeting held surreptitiously and without notice are void in the hands of even an innocent purchaser.⁸ The best evidence of business transacted at a school meeting is its records, and a court may reject oral evidence when the records of proceedings are furnished.⁹

§ 12. *Liabilities of districts ex contractu.*—A debt of a common school district, legally created by an existing directory or board of education, will, in the absence of any legislative intent to the contrary, continue binding on the district and enforceable against a subsequent set of officers, although the legislature may have repeatedly changed the organization of the directory or board by repealing old laws and enacting new ones, the district itself continuing to occupy the same territorial limits.¹⁰ Where one corporation goes entirely out of existence by being annexed to or merged in another, as when a consolidation of districts occurs, the new corporation will be entitled to the property and will be subject

¹ District Township of Hesper v. Independent District of Burr Oak, 34 Iowa, 306.

² Bealey v. Dickinson, 48 Vt., 599.

³ Holbrook v. Faulkner, 55 N. H., 311.

⁴ See State v. Palmer, 39 N. J. L., 250.

⁵ Trustees Common Schools of Dist. 88 v. Garvey; reported by State superintendent to Bureau of Education. Judge McCrary, in his work on Elections, says: "The principle is that irregularities which do not tend to affect results are not to defeat the will of the majority; the will of the majority is to be respected even when irregularly expressed." (Sec. 127.) Cooley on Taxation, p. 249, says: "Informalities are to be overlooked and disregarded if the substantial requisites of a vote appear." See § 36, *post*.

⁶ School Dist. 9 v. School Dist. 5 of Midland, 40 Mich., 551.

⁷ State v. Lewis, 35 N. J. L., 377.

⁸ State v. School District 9 of Nuckolls Co., 10 Nebr., 544.

⁹ Monaghan v. School Dist. 1 of Randall, 38 Wis., 101; Eddy v. Wilson, 43 Vt., 363.

"A distinction has sometimes been drawn between evidence to contradict facts stated on the record and evidence to show facts omitted to be stated upon the record. Parol evidence of the latter kind is receivable, unless the law expressly and imperatively requires all matters to appear of record and makes the record the only evidence." 1 Dillon's Municipal Corporations, sec. 300.

¹⁰ Shankland v. Phillips, 3 Tenn. Chancery, 556. See Dannat v. Mayor N. Y. City, 6 Hun (N. Y.), 88, and Simmons v. Holmes, 49 Miss., 134.

to the liabilities of the former corporation.¹ "Equity and justice," said Dalrimple, J., "require that the consolidated district shall discharge the liabilities of the several districts which it absorbed and of which it is now composed." Similarly, where a city or village school system supersedes a district, it acquires its property and is burdened with its liabilities.² In a case involving this question, the court said: "Where one corporation goes entirely out of existence by being annexed to or merged in another corporation, if no arrangements are made respecting the property and liabilities of the corporation that ceases to exist, the subsisting corporation will be entitled to all the property and answerable for all the liabilities." The law on this subject has been stated in Illinois substantially as follows, in a case arising out of the redistricting of a township: It was not within the power of the township trustees, by any action in the reorganization of the township, to impair the obligation of the directors of an old district to pay a teacher the compensation to which she was entitled under a contract they had made with her for services in behalf of the district. If the indebtedness from the old district had been apportioned among and laid upon the new organizations, thus securing its payment, the law would accept the substituted mode and the old district would be discharged; but, that not having been done, it remains bound, and for all purposes of a remedy will still be deemed to exist.⁴ If a school district is parcelled out among existing districts, the latter are liable for a debt of the former district, and the obligation is not joint but several.⁵ In an Iowa case a township was organized into independent districts after it had incurred a liability, and it was held that recovery could be had of all the independent districts united, and they could determine between themselves the amount for which each should be responsible.⁶

An action will not lie against a school district on account of a claim

¹ *Sproul v. Smith*, 40 N. J. L., 314. It is otherwise in New Hampshire. See *Gen. Laws*, 1878, Chap. 86, sec. 28, and *Clark v. Nichols*, 52 N. H., 298.

² *Thompson v. Abbott*, 61 Mo., 176; *Stroud v. Stevens' Point*, 37 Wis., 367; *School Committee of Providence v. Kesler*, 67 N. C., 443.

³ *Thompson v. Abbott*, 61 Mo., 177.

⁴ *Rogers v. People*, 68 Ill., 154, 156.

⁵ *Halbert v. School Districts, Watertown*, 36 Mich., 421. This case came under a State statute, but the principle contained in the first proposition stated has been affirmed recently (1879) by the United States Supreme Court, as follows: "In such a case [the annexing of portions of a defunct municipal corporation to existing ones], if no legislative arrangements are made, the effect of the annulment and annexation will be that the two enlarged corporations will be entitled to all the public property and immunities of the one that ceases to exist, and that they will become liable for all the legal debts contracted by her prior to the time when the annexation is carried into operation." Three justices dissented on the ground that it requires legislation to make a legal obligation against the enlarged municipalities and to apportion the debts. *Mount Pleasant v. Beckwith*, 100 U. S., 528, 535.

⁶ *Knoxville National Bank v. Independent District of Washington*, 40 Iowa, 612. See, also, *District Township of Knoxville v. Independent Districts*, 36 Iowa, 420, and *Stevenson v. Township of Summit*, 35 Iowa, 462.

which has not been presented for allowance to the proper officer of the district.¹

§ 13. *Liabilities of districts ex delicto.*—A school district or a city is not liable for personal injuries sustained on account of the negligent construction of its school-houses or negligence in keeping them in repair.²

A noteworthy case has recently been decided in Pennsylvania:

A school district employed a contractor to make certain repairs to the school-house. It was expressly agreed that he should not enter upon the work until the school was dismissed for the season. By permission of the supervising architect, the work was commenced earlier. The supports of the first floor were weakened by excavating around them, so that an iron column in the school room above became loosened and falling over injured a child. Suit was brought against the district to recover damages for the injury. The court decided that although the board of directors took no measures to prevent the excavation which caused the damage, and of which some of them were aware, the persons who caused the injury were liable and not the school district. Trunkay, J., in giving the opinion, said:³

"School districts are corporations of a lower grade and less power than a city, have less the characteristics of private corporations and more of a mere agent of the State. They are territorial divisions for the purposes of the common school laws, and their officers have no power except by express statutory grant and necessary implication, and these are for the establishment and maintenance of the public schools. The common school system partakes much of the nature of a public charity, extends over the whole State, is sustained by the public moneys, and the directors, who devote much time and labor for the public benefit, receive no compensation for their services. Unless exempted by the act of incorporation or by law, a private corporation is liable for the wrongful acts and neglects of its officers, done in the course and within the scope of

¹ *Stackpole v. School District No. 5*, 9 Oreg., 508.

² *Lane v. District Township of Woodbury*, 58 Iowa, 462; *Hill v. City of Boston*, 122 Mass., 344. In the latter case Gray, C. J., ably reviews the law of the liability of municipal and quasi-corporations for neglect of corporate duty. "The school district or the road district is usually invested, by general enactments operating throughout the State, with a corporate character, the better to perform within and for the locality its special function, which is indicated by its name. It is but an instrumentality of the State, and the State incorporates it that it may the more effectually discharge its appointed duty. . . . The bodies above named rank low down in the scale or grade of corporate existence, and hence have been frequently called quasi-corporations. . . . Many of the courts have drawn a marked line of distinction between municipal corporations and quasi-corporations in respect to their liability to persons injured by their neglect of duty, holding the former liable, without an express statute giving the action, in cases in which the latter are not considered liable unless made so by express legislative enactment." 1 *Dillon's Municipal Corporations*, secs. 25, 26. In the recent case of *Wixom v. City of Newport* (13 R. I., 454; 43 Am. Rep., 35) it was held that the city was not liable for an injury caused by a defect in the heating apparatus in a public school.

³ *School District of City of Erie v. Fuess*, 98 Pa. St., 600. See § 31, post.

their employment, the same as a natural person is for the acts and neglects of his servant or agent. A less stringent rule applies to public corporations, and least stringent of all should be applied to school districts, whose officers have limited and defined powers in a system exclusively for the free education of the children in the commonwealth."

CHAPTER III.—TAXATION.

§ 14. **Subjects of taxation.**—School districts levy taxes by direction of the legislature and for school purposes only.¹ They are to be levied on districts as they exist at the time of the levy, rather than as they were when the tax was voted.² A legal tax may be levied on a person or property coming into a district after the tax has been voted.³ In New Hampshire the court said: "So far as regards the equity of the thing there is no substantial difference between this case and the case of one annexed against his will to a school district which is already owing debts contracted before the annexation, and, that this may be done, I suppose no one doubts." Where a farm situated in an adjoining town had been annexed to a school district in a city and subsequently the city had been constituted one school district, it was decided that the city, as existing for school purposes at the time it became a single district, constituted that district, and that the farm belonged to it for purposes of taxation for the support of schools.⁴

§ 15. **Purposes of taxation.**—School districts can tax for corporate purposes only,⁵ i. e., "such as have a legitimate connection with their objects and a manifest relation thereto."⁶ Under this class come the erection of buildings, even though more extensive than immediately necessary;⁷ the erection of an alleged unnecessary school-house;⁸ the maintenance of a high school;⁹ and the instruction of pupils in other languages than the English.¹⁰

School districts have no right to raise money to build a school-house upon a lot other than that legally designated.¹¹ Trustees cannot levy a tax for railroad purposes.¹²

¹ "In the absence of special constitutional restriction, the legislature may confer the taxing power upon municipalities in such measure as it may deem expedient; in other words, with such limitations as it sees fit, as to the rate of taxation, the purposes for which it is authorized, and the objects (that is, the property) which shall be subjected to taxation." 2 Dillon's Municipal Corporations, sec. 740. See § 3, *ante*.

² School District 9 v. School District 6, Hamilton Co., 9 Nebr., 331.

³ Fifield v. Swett, 56 N. H., 432, 435.

⁴ Pickering v. Coleman, 53 N. H., 424.

⁵ Board of Trustees v. People *ex rel.* T., W. & W. Railway Company, 63 Ill., 299.

⁶ People v. Dupuyt, 71 Ill., 651, 656.

⁷ Greenbanks v. Boutwell, 43 Vt., 207.

⁸ Power's petition, 52 Mo., 218.

⁹ Stuart v. Dist. 1 of Kalamazoo, 30 Mich., 69; Richards v. Raymond, 92 Ill., 612.

¹⁰ Powell v. Board of Education, 97 Ill., 375; s. c., 37 Am. Rep., 123.

¹¹ Marble v. McKenney, 60 Me., 332.

¹² People v. Dupuyt, 71 Ill., 651, 656.

In New Jersey the purposes for which money is to be raised by taxation must be declared by the voters in school meeting. Unless the exact objects are specified and the sum to be devoted to each is determined, the tax is void.¹

A tax levied by the school trustees of a town or city for school purposes is not a tax for "general city or town purposes."²

§ 16. **Powers of taxation.**—When discretionary power of taxation has been vested in a board of school directors or supervisors and has been exercised for the year, the power is exhausted for the year in which the levy is made; and neither the officers levying the tax nor their successors can levy a different school tax for that year;³ yet, if that power has not been used to the full extent, courts might allow a supplementary tax for a special purpose to be raised.⁴ In Illinois the directors of school districts, under some circumstances, may levy a special tax without a vote of the people.⁵ Where they built a school-house without a vote from the district, the levying a tax, accepting the building, and having a school taught therein did not legalize the act nor bind the people to pay the tax.⁶ When county authorities are empowered to levy such a tax, not to exceed a certain amount, as may be determined by the qualified electors of the several school districts, they cannot forestall the action of the electors by assessing a school tax.⁷ Authority to levy a tax on property does not authorize the levy of a poll tax.⁸ Where it is the duty of one officer to direct another to levy a tax, any written communication is sufficient.⁹

§ 17. **Collection of taxes.**—The illegal formation of a district will afford no ground for resisting the collection of taxes levied by its directors, they being *de facto* officers.¹⁰ Nor can such resistance be offered on the ground that the title to the land purchased as a site for the school building for whose erection the tax was levied is defective, so long as the possession remains undisturbed.¹¹ Although a school tax is invalid if the notices of election fail to specify the questions to be voted on, its validity cannot be questioned by one who participates in the election and seconded the motion to raise the money.¹² Personal chattels outside of the district to which a tax is due should not be dis-

¹ *State v. Greenleaf*, 34 N. J. L., 441; *State v. Sullivan*, 36 N. J. L., 89; *State v. Duryea*, 40 N. J. L., 266.

² *South Bend v. University of Notre Dame du Lac*, 69 Ind., 344.

³ *Oliver v. Caraner*, 39 Texas, 396.

⁴ *Furniture Company v. Harvey*, 45 Iowa, 466.

⁵ *Pennington v. Coe*, 57 Ill., 118.

⁶ *School Directors v. Fogleman*, 76 Ill., 189.

⁷ *Cairo and Fulton R. R. Co. v. Parks*, 32 Ark., 131; *Murphy v. Harbison*, 29 Ark., 340.

⁸ *Board of School Commissioners of Indianapolis v. Wagner*, 84 Ind., 67.

⁹ *Dent v. Bryce*, 16 S. C., 1.

¹⁰ *Trumbo v. People*, 75 Ill., 561.

¹¹ *People v. Sisson*, 98 Ill., 335.

¹² *Thacher v. People*, 98 Ill., 632.

trained for school taxes, even though the district seeking to distrain included, when the tax was levied, the territory within which the chattels are found. A tax levied is not a lien upon personal property.¹ It is well settled in many States that money paid by compulsion on account of a void tax may be recovered in an action against the municipality receiving it. It is equally well settled that if a person voluntarily pays a void tax, with knowledge of the facts which render it void, he cannot recover back the money thus paid.²

§ 18. **Exemption of school property from taxation.**—Statutes and constitutional provisions for the exemption from taxation of property used for educational purposes are strictly construed,³ and are sometimes declared to be directions not to tax rather than grants of a right not to be taxed.⁴ Where the constitution of a State exempted property used *exclusively* for educational purposes, it was held that neither land owned by a college with the intention that it should become in future a permanent site,⁵ nor a farm used by the owners of a school for supplying produce and illustrating instruction in agriculture,⁶ was exempt. In the latter case the court said :

“If a farm be used for the purpose of raising produce to sell and get money to carry on a school, it will not be exempt. The use for educational purposes is in such a case too remote. The immediate or primary object for cultivating the farm in such a case is to obtain the produce, the secondary object is to obtain the money that the produce will bring, and the remote object is to aid and foster the school.” The property affected by a clause exempting all deemed necessary for school purposes is much more extensive.⁷ In an opinion in the United States Supreme Court, Mr. Justice Miller said :⁸ “The distinction is, we think, very broad between property contributing to the purposes of a school, made to aid in the education of persons in that school, and that which is directly or immediately subjected to use in the school. The purposes of the school and the school are not identical. The purpose of a college or university is to give youth an education. The money which comes from the sale or rent of land dedicated to that object aids this purpose. Land so held and leased is held for school purposes in the fullest and clearest sense.” It has been decided that a professor's house, owned by a college, is included in an exemption of the grounds and buildings of literary institu-

¹ *McKay v. Batchellor*, 2 Colo., 591. “Municipal power to collect by distress and sale cannot be implied because the State collects its taxes in this manner. It must be given, if not in express terms, yet by the clearest and most indubitable implication.” 2 *Dillon's Municipal Corporations*, sec. 818.

² *Powell v. Board of Supervisors of St. Croix County*, 46 Wis., 210, 213.

³ *South Bend v. University of Notre Dame du Lac*, 69 Ind., 344, and nearly all cases cited in this section.

⁴ *Probasco v. Moundville*, 11 W. Va., 501.

⁵ *Washburn College v. Commissioners of Shawnee County*, 8 Kans., 344.

⁶ *St. Mary's College v. Crowl*, 10 Kans., 442, 450.

⁷ *Chicago v. People*, 80 Ill., 384, 387.

⁸ *University v. People*, 99 U. S., 309, 324.

tions "devoted solely to the appropriate objects of these institutions." The reasons assigned for the decision were that the house was erected with money of the college that might otherwise have been exempt, that it was used to sustain the college, that it was for an object peculiarly fitting and appropriate, and that it was not leased or otherwise used with a view to pecuniary profit. Two judges dissented on the ground that the house was owned and used for the purpose and object of reducing salary expenses, and consequently for a pecuniary profit.¹

§ 19. *Same.*—Two cases involving the exemption of school property are mentioned in a recent number of a prominent law journal.² In one it was held that a building used partly as a dormitory and boarding house for students of an academy and partly as a public house is not exempt from taxation as land "for the use of the academy," the court saying that "the phrase 'for the use of' is not to be taken in the same sense as 'for the profit of.'"³ In the other case⁴ a female seminary was originally located upon a tract of eight acres of land, upon which were erected the buildings of the institution. Afterward the corporation acquired three other small tracts of land. All are included in the common inclosure of the seminary grounds, with dividing fences within that common inclosure. The several tracts are used, a portion for walks and lawns for the exercise and benefit of the scholars, a part for gardening to supply the institution with vegetables, a part for an orchard to supply necessary fruit for the institution, a part for raising feed for stock, for pasturage, and for wood land, all for the exclusive use of the institution, and not "otherwise used with a view to profit." These lands were held exempt from taxation under the statute of exemption relating to property of institutions of learning. The court said: "The evidence further shows that all this property is necessary for the proper carrying on of the institution; that said tracts of land are used exclusively for the purposes of the institution, and that no part of the same has been leased or otherwise used with a view to profit; that it is necessary in connection with the institution to have cows to supply milk for the scholars and teachers, all of whom (numbering about 175 persons) reside and live within and upon the grounds of the institution; that horses are required to do the necessary hauling connected with the seminary, and that all the hay, corn, and oats raised on the place go to the feeding of the stock thereon; that nothing is ever sold off the premises, and that what is raised is but a partial supply for the institution; that the object of the institution is, as far as possible, to make it a self-sustaining one, and that what is realized over and above actual expenses is used as a fund for the education of indigent females. We do not see why the facts of this case do not bring these lands within the very words of

¹ *Trustees of Griswold College v. State*, 46 Iowa, 275, 281, 283.

² *Albany Law Journal*, vol. 28, p. 205.

³ *Trustees of Phillips Exeter Academy v. Exeter*, 58 N. H., 306; s. c., 42 Am. Rep., 589.

⁴ *Monticello Seminary v. People*, 106 Ill., 398.

the exemption from taxation of the constitution and the legislation upon the subject. They form one connected body of land, upon which the seminary buildings are situated. They are not lands which are leased by the institution or otherwise used with a view to profit, but they are used strictly in the carrying on of this seminary of learning, and are used exclusively for that purpose." Chief Justice Scott dissented on the ground that land used as a farm was "used with a view to profit."

§ 20. *Same*.—Schools established by private donations, and carried on for the benefit of the public and not with a view to profit, are "institutions of purely public charity" within the meaning of the provision of the Ohio constitution which authorizes such institutions to be exempt from taxation.¹ Such schools are not exempt as being "free public schools."² The term "school-houses and seminaries of learning" evidently includes the buildings and the lots upon which they stand.³ How much is included in an exemption of lots whereon school buildings are erected was discussed at considerable length in New York a few years ago (1875).⁴ An academy for ladies owned extensive grounds in the upper part of New York City and had its buildings near the centre of them, occupying about five acres. Eight acres were used as a vegetable garden for the academy, one acre as a cemetery, and the residue, thirty-six acres, more or less, was for recreation and walking. It was decided that the property was exempt. The court said:⁵ "The propriety of the exemption is precisely the same, whether it relates to the buildings themselves and the lots on which they stand, or to the ground required to promote and secure the recreation and health of the pupils of the schools and those engaged in teaching and guarding them. A well ordered, prosperous school requires the one as much as it does the other. It would be very unwise and indiscreet to allow young persons to be confined in school buildings upon grounds affording no reasonable opportunity for exercise or diversion." "The property claimed by the relator to be exempt from taxation was all shown to be a portion of the lots or parcel of ground on which its school buildings are situated. What they

¹ *Gerke v. Purcell*, 25 Ohio St., 229.

² *St. Joseph's Church v. Assessors*, 12 R. I., 19.

³ *Warde v. Manchester*, 56 N. H., 508; s. c., 22 Am. Rep., 504. "An exemption of all colleges, academies, or seminaries of learning extends to the houses and lots provided by a college for the residences of president, professors, and steward as part of their compensation." Hilliard's "Law of Taxation," sec. 35.

⁴ *People ex rel. Academy of the Sacred Heart v. Commissioners of Taxes and Assessments of New York City*, 6 Hun (N. Y.), 109. The statute under consideration provided that "The following property shall be exempt from taxation: * * * Every building erected for the use of a college, incorporated academy, or other seminary of learning, every building for public worship, every school-house, court-house, and jail, and the several lots whereon such buildings are situated, and the furniture belonging to each of them." Rev. Stat., 5th ed., vol. 1, p. 906.

⁵ *Ibid.*, 112, 114. Union College holds exempt 130 acres; Madison University, 140 acres; Vassar College, 210 acres; and Cornell University, a still greater area.

do not occupy has been devoted to the promotion of the convenience of the occupants of the buildings, supplying their wants, and affording them the means of recreation, health, and exercise."

§ 21. **Local assessment of school property.**—It has been frequently stated that school property, exempt from taxation, was nevertheless liable to local assessments for the construction of streets, sewers, and the like.¹ A recent case in Connecticut has been decided to the contrary. Under the charter of the city of Hartford all land specially benefited by a city improvement was liable to be assessed for the expenses of such improvement. A school house and lot, used solely for school purposes, was assessed for a street improvement, and the court held that the benefit to the school district was too contingent and remote to render it liable to pay the assessment.² The court said: "The assessment was undoubtedly made upon the idea that the intrinsic value of the property was increased, but, if that were so as a matter of fact, does it follow that it was increased in value as school district property, bought and used solely for school purposes? and did the district, or could it, from the nature of things, derive any immediate, direct, or special benefit from the laying out of the street? We are unable to see how the district as a corporation could be so benefited, or that their property was rendered any more valuable for the purpose for which they use it, and for which they must continue to use it, if not for all time, at least for a very long period."

The following statement of the exemption of school property from taxation appeared in the Report of the United States Commissioner of Education for 1880, pp. cclv-cclvii:

The exemption of school property is either determined by the constitution of each State or else impliedly or expressly delegated by it to the legislative body. The States whose constitutions prescribe the rule of exemption are Arkansas, California, Kansas, Louisiana, Minnesota, Missouri, Ohio, and Pennsylvania. The property which is exempted is, in Pennsylvania, public property used for public purposes, which includes schools aided by the Commonwealth; in Ohio, public school-houses, by which is meant "such as belong to the public and are designed for schools established and conducted under public authority." [Gerke v. Purcell, 25 Ohio St., 229, 240.] The term has been made to cover not only the houses themselves, but their furniture and the books properly belonging with them. In California property used exclusively for public schools is required to be exempted. In Missouri, lots in incorporated cities or towns, or within one mile of the limits of any such city or town, to the extent of one acre, and lots of one mile or more distant from such cities or towns, to the extent of five acres, with the buildings thereon, may be exempted from taxation when the same are used exclusively for religious worship, for schools, or for purposes purely charitable. In Minnesota, public school-houses,

¹ "It is no objection to an assessment for a local work that the property assessed is used for a purpose that will not be specially advanced by the improvement; as, for instance, that it is * * * devoted to school or charitable purposes." Cooley on Taxation, p. 458.

"A general statute exempting certain property * * * from 'taxation by any law of the State' does not exempt it from liability for a street assessment." 2 Dillon's Municipal Corporations, sec. 777.

² City of Hartford v. West Middle District, 45 Conn., 462; s. c., 29 Am. Rep., 685.
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academies, colleges, universities, and all seminaries of learning are exempted from taxation; in Arkansas, school buildings and apparatus, libraries, and grounds used exclusively for school purposes; and in Kansas and Louisiana, all property used exclusively for educational or school purposes. The constitution of Colorado exempts lots, with the buildings thereon, used exclusively for schools, "unless otherwise provided by general law," and that of South Carolina requires the general assembly to enact laws for the exemption of public schools, colleges, and institutions of learning, provided the exemption shall not extend beyond the buildings and premises actually occupied. In the other States the exemption of school property is a matter for independent legislative action, though many constitutions give special permission to legislatures to exempt property of certain kinds or property used for specific purposes.

The latest compilations of the statutes of the several States show substantially the laws regulating the exemption of school property as they now exist. There may have been a few changes, but it is not a subject upon which there has been much fluctuating legislation. In Illinois, Maine, Maryland, Massachusetts, Mississippi, North Carolina, Oregon, South Carolina, and West Virginia, all school property, with some few limitations, has been exempted. In Maine and Maryland all the property of literary institutions is designated as exempt. In Illinois this broad exemption is limited by the provision that it shall not extend to real estate leased or otherwise used with a view to profit. In Massachusetts exemption of real estate does not extend beyond that occupied by the educational institutions and their officers for corporate purposes. In Mississippi it extends, not only to property used for the benefit and support of institutions for the education of youth, but also to that held and occupied by the trustees of schools and school lands for the use of public schools.

* * * * *

The exemption of school property is almost as general in Iowa, Kentucky, Michigan, Minnesota, Nebraska, Nevada, New Jersey, New York, and Texas as in the States previously mentioned. In all of them, buildings, grounds, and furniture are exempt so far as they are actually necessary for the use and enjoyment of the institutions owning them. Books or libraries are expressly included in the exempt property in all these States except Nevada, New Jersey, and New York; and apparatus, equipments, or other general terms are used in all these States to designate personal property commonly found in schools, and which is usually exempted by direct words or by implication. The exemption of these kinds of property is on condition oftentimes that they be used for strictly educational purposes and be not in excess of specified amounts. The real estate exempted is limited to three acres in Nebraska and five acres in Kentucky and New Jersey. In Minnesota, Nevada, and New York it must be immediately connected with the buildings of the institution to which it belongs. In Connecticut, Georgia, New Hampshire, and Vermont it is known that the buildings of educational institutions are exempt, and it is to be presumed that the term "buildings" includes the lots upon which they are erected. In Florida and Indiana public school property is exempted. The laws in Rhode Island and Wisconsin have peculiar features which will best be understood by presenting them *verbatim*. The law of Rhode Island exempts "buildings for free public schools, buildings for religious worship, and the land upon which they stand and immediately surrounding the same to an extent not exceeding one acre, so far as said buildings and land are occupied and used exclusively for religious or educational purposes; the estates, persons, and families of the president and professors, for the time being, of Brown University, for not more than ten thousand dollars for each such officer, his estate, person, and family included."

In Wisconsin exemption extends to "personal property owned by any religious, scientific, literary, or benevolent association, used exclusively for the purposes of such association, and the real property, if not leased or not otherwise used for pecuniary profit, necessary for the location and convenience of the buildings of such association and embracing the same, not exceeding ten acres, and the lands reserved for grounds of a chartered college or university, not exceeding forty acres."

CHAPTER IV.—SCHOOL PROPERTY.

§ 22. *School funds.*—The State is the owner of public school property and school funds; and this is one reason why such property is exempt from taxation.¹ In the case of certain lands held in the name of the city of Chicago exclusively for the use of its public schools and derived mediately from public school lands, the court said :² “No act of the general assembly has ever granted the title to the school property and fund irrevocably to any body of persons. They have created corporate bodies to handle and control the fund for the use of the people, but that body has not parted with the power to control the fund in any mode they may choose for the use of schools. They could, if disposed, deprive those to whom its management is intrusted of the fund, and intrust it to others. Whilst the increase of the fund should be expended in the support of schools, the manner or the agency employed may be at all times controlled or changed by the State at pleasure. The State is virtually a trustee of the fund for the use of the people, and the municipalities and officers are but the agencies employed by the State in executing its trust.” The general assembly has no power to abdicate its control over the school fund.³ Such a fund must be applied to the exact purposes for which it was created and exists.⁴ But although the State may not have the constitutional power to divert school moneys from the purposes for which they are set apart, she may change the administrators of the funds, and, in her wisdom and discretion, direct the mode and manner of the administration of the trust, and how, by whom, and to whom the moneys are to be paid and applied.⁵ If a fund is provided by the constitution for free public schools it can only be applied to such schools as are within the uniform school system required, are free from religious and sectarian control, and open to children of school age; though this freedom of admission does not preclude the classification of the schools according to the ages, sex, race, or mental acquirements of the pupils.⁶ In a case in Massachusetts, under a constitutional provision requiring moneys raised for the public schools to be applied only to those under the charge of the public authorities, it was denied that a town could appropriate moneys raised for public schools to the support of a school founded by a bequest, under which the charge of the school was vested in trustees who, though most of them elected by the town, must be connected with certain religious societies.⁷ A tax for building purposes cannot be used for ordinary ex-

¹ *City of Chicago v. People*, 80 Ill., 384. See *Illinois Industrial University v. Supervisors of Champaign County*, 76 Ill., 184, and § 3, *ante*.

² *City of Chicago v. People*, 80 Ill., 385.

³ *Auditor v. Holland*, 14 Bush (Ky.), 147.

⁴ *Wiley v. School Commissioners of Alleghany Co.*, 51 Md., 401.

⁵ *Mobile School Commissioners v. Putnam*, 44 Ala., 506.

⁶ *Otken v. Lamkin*, 56 Miss., 758. On race classification, see § 44, *post*.

⁷ *Jenkins v. Andover*, 103 Mass., 94.

penses; but the exemption of the surplus of the annual taxes from the payment of debts contracted for buildings would not seem a rule of law or justice, if payment would not prevent the schools from being kept open the required period in the subsequent year.¹ When real estate is conveyed to school trustees for school purposes, and this is so expressed in the deed, the land itself must be so used; the directors and trustees have no right to sell the land and apply the proceeds to school purposes, but they may rent it or use it as a school site.² If the power of loan of school funds is regulated, the lending of them on other securities than those mentioned and prescribed is a misapplication, but does not discharge the borrower.³ Such funds in the hands of a county treasurer are not secured by his general bond, but only by his distinct bond for their payment, this being not cumulative to his general bond, but separate from it.⁴

§ 23. *Same.*—A school district can take by will.⁵ Money bequeathed to a township goes to the territory which was included in the specified township at the time of the execution of the will.⁶

There was a bequest in New York City to the board of trustees of each of the several wards as they might exist at the time of the final distribution of the estate, and in construing the clause the court said:⁷ "I do not think the provision can be extended to embrace schools in wards created in territory annexed to the city limits since the testator's death. Whilst he did contemplate that by increase of population old wards might be divided and in this way new ones created, he did not provide for schools in territory to be after acquired."

A due proportion of all moneys intended for the education of the children that resided in an original district ought to be given by it to a new one formed partly out of its territory prior to its reception of the moneys, although the new district was not organized until afterward.⁸ Where territory is set into an adjoining county or township, or attached to an independent school district in an adjoining county or township, for school purposes, or is restored from an independent district to the district township to which it geographically belongs, there must be an equitable apportionment of all the assets and liabilities.⁹ If money is willed to a village to build a suitable structure for a high school, without further direction as to its maintenance and without endowment, the village may build the house, use it temporarily for graded school purposes, and delay for a reasonable time the organization of a higher

¹ *German Township School District v. Sangston*, 74 Pa. St., 454.

² *Trustees, &c., of Morgan County v. Braner*, 71 Ill., 546.

³ *Littleworth v. Davis*, 50 Miss., 403.

⁴ *State v. Young*, 23 Minn., 551; *State v. Johnson*, 55 Mo., 80.

⁵ *Estate of Bulmer*, 59 Cal., 131.

⁶ *Board of Education v. Ladd*, 26 Ohio St., 210.

⁷ *Betts v. Betts*, 4 Abbott's New Cases (N. Y.), 412.

⁸ *Johnson v. Smith*, 64 Ind., 275.

⁹ *Albin v. Directors of Independent District of West Branch*, 58 Iowa, 77. See § 5, *ante*.

department.¹ Fines imposed by municipal ordinance are not included in those accruing to the State, such as in some States are added to the school fund.²

§ 24. *Sites and buildings.*—A public school-house is a building belonging to the public and designed for schools established and conducted under public authority.³ A district contracting for the erection of a house within a stated time is bound to furnish a suitable site within such reasonable time that the contractors may not be delayed in the performance of their agreement.⁴ A site may be obtained by condemnation.⁵ While the law was silent on the subject of obtaining sites otherwise than by purchase, certain counties of Pennsylvania successfully tried compulsory condemnation; then the State passed a law allowing it, and the law was pronounced constitutional.⁶ The court said: "The common school system pervades the whole Commonwealth and is its creature, acting in the several school districts by its boards of directors or controllers, who are simply the agents of the State in carrying out the wise, benevolent, and foresighted policy of the government. Every man, woman, and child in a republic should be able to read and write, and this is the object aimed at by the common school law. School-houses are an essential part of the system, and the compulsory power is as necessary to it as the taking of land for a public highway." In a case in Maine the court assumed that land might be taken under the right of eminent domain, against consent, and the compensation therefor fixed by others, without the participation of the owner, under a statutory clause authorizing school districts "to determine where their school-houses shall be located."⁷ Proceedings to condemn are invalid where there has been no legal determination of the site.⁸ A petition asking the condemnation of a site should designate the same and show disagreement with the owner as to compensation. When the owner of a proposed site is represented at the proceedings to condemn it, he is deemed to waive objections to jurors if he does not challenge them at the time.⁹ If a lot is taken illegally, no allowance will be made for improvements put upon it.¹⁰ The fact that a lot has already been im-

¹ *Hathaway v. New Baltimore and Lake School District*, 48 Mich., 257.

² *Commissioners v. Raleigh*, 88 N. C., 120.

³ *Gerke v. Purcell*, 25 Ohio St., 229.

⁴ *Todd v. School District 1 of Greenwood*, 40 Mich., 294; *Township Board of Education v. Hackman*, 48 Mo., 243.

⁵ "Land may be appropriated for the erection of a school-house and for a school yard. The use proposed is not local and limited, but public. Schools are a public necessity, and as taxation for schools is supported the exercise of eminent domain is equally justified in providing suitable locations." *Mills on Eminent Domain*, § 17.

⁶ *Long v. Fuller*, 68 Pa. St., 170, 172.

⁷ *Norton v. Perry*, 65 Me., 103.

⁸ *Heck v. Essex School District*, 49 Mich., 551.

⁹ *Smith v. School District 2 of Milton*, 40 Mich., 143.

¹⁰ *Spalding v. Chelmsford*, 117 Mass., 393.

proved does not prevent its condemnation.¹ If a location is void by reason of insufficient and defective description of premises taken, proceedings must be begun anew in order to make a valid location.² If a site is purchased the deed of conveyance must be without any defeating condition, such as that the land shall revert to the grantor on a change in the school system. Such a limitation is inconsistent with the objects of the grant and must be rejected as surplusage.³

In New York it was held that a deed made and received by a school district trustee on the express condition "that the title and estate of the grantee [trustee] and his successor in the said premises should cease when the said use [as a public school site] should cease, and should thereupon be vested in the grantor, his heirs, and assigns; the district to build the fence and keep it in repair," was such a conveyance as a school district might accept, and that the last clause imposed on the district an obligation differing only in extent from that which the law imposes with regard to division fences, which the district might enter into before voting a tax for building or repairing the fence.⁴

§ 25. *Same.*—A school-house erected on the land of a private citizen by his oral consent will be considered personal property.⁵ In the case referred to, the court said: "Although it is a general principle of law that a building permanently annexed to the freehold becomes a part of it and is real estate, yet if it is erected by the builder with his own money, and for his own exclusive use, as disconnected from the use of the land, and with an agreement to that effect between the owner of the land and the builder, it will, as between the parties, be considered personal property." A committee of a board of school directors appointed to get up plans for a new school building from some architect and submit the same for approval, has authority to contract with an architect for plans and specifications as well as a preliminary sketch.⁶ Before a building can be paid for, in Nebraska, at least, the district must not only raise the money, but distinctly authorize its expenditure.⁷ School-houses and sites are "assets" within the meaning of a statute providing for an equitable division of assets in case of the division of districts.⁸

§ 26. *Use of buildings.*—A public school-house is to be used for public school purposes.⁹ A lease of one continuing during a specified time and based on a valuable consideration by a board of education vested with

¹ *Ferree v. School District*, 76 Pa. St., 376.

² *Norton v. Perry*, 65 Me., 183.

³ *School Committee of Providence v. Kesler*, 67 N. C., 443, 447.

⁴ *Albright v. Riker*, 22 Hun (N. Y.), 367.

⁵ *District Township of Corwin v. Morehead*, 43 Iowa, 466, 468.

⁶ *School District of McKeesport v. Miller*, 1 Pa. Sup. Ct., 510.

⁷ *School District of Dickson County v. Stough*, 4 Nebr., 357.

⁸ *Williams v. District Township of Jackson*, 36 Iowa, 216.

⁹ *Spencer v. School District*, 15 Kans., 259. Statutes allow some other uses in several States.

the property of a district in trust for the use of public schools, for the purpose of having a private or select school taught therein, is in violation of trust.¹ Charter authority to a village council, as a board of education, to purchase grounds, erect buildings, borrow money to establish a school of a high grade, and levy taxes for the erection and support of the same, does not authorize the conveyance or leasing of the buildings when completed, without pay or rent, to an individual or private corporation, for the purpose of having a school taught therein for pay. The school contemplated by such a charter is one free to all children of suitable age and advancement residing in the district, and anything else is a perversion of the property from its intended uses.² But if a town is specially empowered to own and use a school-house for educational purposes, it may open a free public school, or rent the premises to private parties,³ or procure an interest in existing schools,⁴ as may seem best to provide for the educational wants of the public. In the case last cited a town purchased a controlling interest in two established schools. In deciding that it had a right to do so, the court, not relying on a statute, and simply referring to the article of the constitution requiring the maintenance of a thorough system of general education, said:⁵ "No student of the history of this country from the earliest settlement to the present day can fail to see that, to furnish facilities for the education of the people, it has not only been the constant practice of both the State and the corporate [municipal] organizations to engage in projects for the advancement of education, but that this has been a favorite and preferred object; and it seems to us that more permanent good has come to the country from this application of municipal funds than from any other use of such funds." "The trustees in this case undertook to keep up the school. No profit accrues to them. The house is the necessary thing; the public may well furnish that, leaving the school to support itself." The use of a school building for the purposes of a Sunday school has been disapproved in Missouri, on the grounds that the school law does not justify or authorize it and that "if the precedent be established it may lead to great abuses and disagreeable altercations between different religious denominations, which it is the purpose of our common school to avoid."⁶ Such a use has been allowed in Iowa under a clause in a statute authorizing the electors to direct the disposition to be made of the school-house;⁷ and the use of the school-house for Sabbath school and religious services is not affected by a clause in the constitution exempting all persons from paying taxes for building

¹ *Weir v. Day*, 35 Ohio St., 143.

² *Sherlock v. Winnetka*, 68 Ill., 530.

³ *Fleishell & Kimsey v. Hightower*, 62 Ga., 324.

⁴ *Danielly v. Cabaniss*, 52 Ga., 211.

⁵ *Ibid.*, 222.

⁶ *Dorton v. Hearne*, 67 Mo., 301.

⁷ *Townsend v. Hagan*, 35 Iowa, 194.

or repairing places of worship. The use for the purposes named does not convert the school-house into a building for worship within the meaning of the constitution, since it is only temporary, occasional, and enjoyed only by permission.¹ In Illinois it has been decided that the temporary use of a school-house for religious worship is not repugnant to clauses in the constitution forbidding the use of public funds for sectarian purposes and requiring school moneys to be faithfully applied to school purposes.² "Religion and religious worship," said the court, "are not so placed under the ban of the constitution that they may not be allowed to become the recipients of any incidental benefit whatsoever from the public bodies or authorities of the State."

§ 27. **Insurance, repair, and furnishing of school-houses.**—A provision that a school officer shall have the control and management of the school-house does not empower him to bind the district by a contract of insurance,³ nor to purchase lightning rods.⁴ A district can obtain the insurance on a school-house burned, although it had been nominally sold on credit by officers authorized to sell, because such sale on credit was void without ratification by the district.⁵ If a house be burned the insurance money cannot be obtained by the creditors by garnishment;⁶ for the property of a school district cannot be garnished,⁷ nor subjected to a mechanics' lien.⁸ Neither a stereoscope with views⁹ nor charts containing the multiplication tables, forms for business contracts, and prominent historical events,¹⁰ are "necessary appendages" to a school-house. A board authorized to purchase school apparatus may buy an organ for a school in which music is taught as a recognized branch of education.¹¹

¹ *Davis v. Boget*, 50 Iowa, 11.

² *Nichols v. School Directors*, 93 Ill., 61; s. c., 34 Am. Rep., 160.

³ *American Insurance Company v. District Townships Willow and Grand Meadow*, 55 Iowa, 606.

⁴ *Monticello Bank v. District Township of Coffin's Grove*, 51 Iowa, 350; *Wolf & Son v. Ind. District*, 51 Iowa, 432.

⁵ *School District v. Aetna Insurance Company*, 62 Me., 330.

⁶ *Fleishell & Kimsey v. Hightower*, 62 Ga., 324.

⁷ See § 6, *ante*.

⁸ *State of Missouri v. Tiedemann*, 3 McCrary, U. S. Cir. Ct., 399; *Whitney & Keemer v. Story County*, 54 Iowa, 81; *Abercrombie v. Ely*, 60 Mo., 23.

⁹ *Bourbon County, &c., v. Perkins*, 21 Kans., 536; s. c., 30 Am. Rep., 447.

¹⁰ *Gibson v. School District 5 of Vevay*, 36 Mich., 404. A mathematical chart may come within the description of "school apparatus and appendages." The court said: "Now it is certain that all kinds of school apparatus are not included among the articles properly denominated 'appendages;' for instance, we would think that blackboards, outline maps, and mathematical charts, to be hung upon the walls of the school-house and to remain there permanently for the purpose of illustrating such lessons in science, history, or geography as might be taught in the schools, might properly be denominated both 'school apparatus' and 'appendages.' A mathematical chart might be hung upon the walls of the school-house and become an appendage; and it might also be used for the purpose of illustrating the science of mathematics, and thereby become a part of the apparatus used by the school." *School District v. Swayze*, 29 Kans., 211; *Al. L. J.* 28, p. 424.

¹¹ *Bellmeyer v. Independent District of Marshalltown*, 44 Iowa, 564.

Seats may be bought under a resolution directing a board to "fix the school-house ready for the winter term."¹ The mere fact that seats, maps, globes, &c., have been used by the district does not ratify an illegal purchase and bind the district for payment.² A statute providing that a director shall keep the necessary school-house furniture in proper order, and that his expenses shall be subsequently audited and paid, does not intend that money shall be put into his hands previous to such auditing.³

CHAPTER V.—OFFICERS.

§ 28. *Quasi-judicial powers of officers.*—School officers are usually possessed of specially defined powers and should exercise no others, except such as arise by fair implication from those granted.⁴ In many States certain school officers are clothed with authority to decide controversies and hear appeals. An appeal is not a suit; and a statute providing for the employment of counsel in case of suits by or against a district does not warrant such employment in case of a hearing before a county or State superintendent.⁵ The hearing of an appeal and the decision of controversies and disputes arising under the school law are exercises of "a visitatorial power of the most comprehensive character."⁶ The decisions of an officer or board clothed with such power are entitled to great weight with the courts⁷ and are of value in construing the school law when it admits of different constructions.⁸ In Maryland they are summary and conclusive.⁹ The manner of conducting the hearing of cases by school officers may be determined by them in the absence of statutory regulation. A superintendent may require evidence to be submitted in the form of affidavits and the arguments of parties or counsel to be in writing, and may refuse a personal hearing of witnesses and an oral examination of them before him.¹⁰ A board of education need not require testimony to be given under oath.¹¹ "The delicate nature of the duty devolved upon the trustees," said Judge Noah Davis,¹² of New York, in a case involving the discharge of a teacher, "to see to it that unfit or incompetent persons are not put or kept in charge of the children who attend the common schools forbids the idea of a trial with the formality and strictness that belong to

¹ McLaren v. Township Board of Akron, 48 Mich., 189.

² Johnson v. School Directors, 67 Mo., 319; Kane v. School District, 52 Wis., 502.

³ Hamtramck Board v. Holihan, 46 Mich., 127.

⁴ Peers v. Board of Education, 72 Ill., 508; School District 4 of Rush v. Wing, 30 Mich., 351. The legislative power of a State board of education is discussed in Mobile School Commissioners v. Putnam, 44 Ala., 508.

⁵ Templin & Son v. District Township of Fremont, 36 Iowa, 411.

⁶ Wiley et al., Trustees, v. School Commissioners of Alleghany Co., 51 Md., 401.

⁷ State ex rel. Burpee v. Burton, 45 Wis., 150; s. c., 30 Am. Rep., 706.

⁸ Appeal of Cottrell, 10 R. I., 615, 617.

⁹ Wiley et al., Trustees, v. School Commissioners of Alleghany Co., 51 Md., 401.

¹⁰ State ex rel. Moreland v. Whitford, 54 Wis., 150, 155.

¹¹ People ex rel. Murphy v. Board of Education, 3 Hun (N. Y.), 177.

¹² Ibid., p. 181.

courts. It is only necessary to suggest that they must often act upon moral convictions rather than established facts, and upon evidence of unfitness, physical, mental, or moral, that would not in courts be such proof as would justify a verdict of guilt of specific offences or immoralities." If an appeal is taken under a statute, the party appealing waives those questions which require a judicial review and submits himself to the discretion of the appellate body.¹ The wisdom of intrusting school controversies to school officers has been approved in several of the opinions cited, as will be seen by the following brief quotations: "We are satisfied that this supervision of the State superintendent over the affairs of schools and school districts, commonly very fruitful sources of litigation, has been most wisely conferred upon him for the public interest, as well as for the peace and prosperity of the schools and districts themselves."² "If every dispute or contention among those intrusted with the administration of the system, or between the functionaries and the patrons or pupils of the schools, offered an occasion for a resort to the courts for settlement, the working of the system would not only be greatly embarrassed and obstructed, but such contentions before the courts would necessarily be attended with great costs and delay, and likely generate such intestine heats and divisions as would in a great degree counteract the benevolent purposes of the law."³ "A quarrel or a lawsuit in a school district is generally not long confined to the original parties. It spreads among all the families, it goes into the selection of teachers, and injures the discipline of the schools; and if the difficulty once takes the shape of a lawsuit, and the parties have expended money as well as temper upon it, it is still more difficult to settle. Hence the provision for a cheap and speedy decision avoiding the delay and expense of a lawsuit."⁴

§ 29. *Same. Limitation of appeals.*—A clause in the code of Iowa provides that "any person aggrieved by any decision of or order of the district board of directors, in matter of law or fact, may, within thirty days after the rendition of such decision or the making of such order, appeal therefrom to the county superintendent." The directors of the independent school district of West Des Moines had made a rule that scholars guilty of defacing or injuring school property should not be allowed to attend school until payment of damages or adjustment of the case. A child accidentally broke a glass in a window. Neither he nor his parents paid for it. Consequently the child was refused admittance. The case was brought before the courts, and the question of jurisdiction considered. Three judges of the supreme court believed that it had jurisdiction; two, one of them the chief justice, dissented. Rothrock, J., in dissenting, said: "It seems to me that this is a case where

¹ Brody v. Penn, 32 Mich., 272.

² State *ex rel.* Moreland v. Whitford, 54 Wis., 154.

³ Wiley *et al.*, Trustees, v. School Commissioners of Alleghany Co., 51 Md., 406.

⁴ Appeal of Cottrell, 10 R. I., 618.

the remedy by appeal is peculiarly appropriate. The controversy is one concerning the proper government of the school, and it should be determined by the tribunal appointed by law to settle such questions. If resort can be had to the courts without first appealing to the county superintendent, and from him to the State superintendent, the law allowing an appeal becomes a dead letter and wholly useless and inoperative." The majority decided that the subjects of appeal are limited. Beck, J., giving the opinion, said: "It cannot be held that decisions and orders refusing the allowance and payment of claims against the district, or construing contracts, or affecting the possession of or right to property, when the interest of a citizen is affected thereby, may not be questioned except upon appeal. * * * It was certainly never the intention of the legislature to confer upon school boards, superintendents of schools, or other officers discharging judicial functions exclusive authority to decide questions pertaining to their jurisdiction and the extent of their power. All such questions may be determined by the courts of the State. Hence, when the rights of a citizen are involved in the exercise of authority by a school officer the courts may determine whether such authority was lawfully exercised."¹

§ 30. **County superintendents.**—The powers and duties of a county superintendent of public instruction are derived entirely from statute. He can only exercise such powers as are especially granted or are incidentally necessary to carry the same into effect. Any proceedings on his part beyond the scope of his authority, or where he has no jurisdiction, are absolutely void.² If he has discretionary power with regard to granting certificates, the court may compel him to act upon an application, but it cannot control his discretion.³ He may sue for and recover moneys due the officers whom he has superseded.⁴ He cannot draw a warrant for the minimum salary allowed by law when his salary is to be fixed by a board of supervisors.⁵ If he accepts through ignorance a less sum than that to which he was entitled, he cannot recover the remainder.⁶ If the amount of the salary is to be determined by a body and that body has acted, the decision is final, though it acted on its own motion, in the absence of the superintendent, and allowed him but half he claimed.⁷

§ 31. **Directors, trustees, &c. Organization.**—The first business of a school board composed of continuing and newly elected members is to organize. This is best accomplished ordinarily by effecting a temporary organization; whereupon the returns of the election are read or the certificates

¹ Perkins v. Directors Ind. Dist. of West Des Moines, 56 Iowa, 476.

² Ratcliff v. Faris, 6 Nebr., 539, 544.

³ Bailey v. Ewart, 52 Iowa, 111.

⁴ Simmons v. Holmes, 49 Miss., 134.

⁵ Peachy v. Redmond, 59 Cal., 326.

⁶ Campbell v. Board of Commissioners of Monroe Co., 71 Ind., 185.

⁷ Haile v. Young, 6 Lea (Tenn.), 501.

of the directors elect are presented; and thus all the members participate in the permanent organization. If a permanent organization cannot be accomplished, however, because no one of the members can obtain a majority of votes for president, it is such neglect of duty as will justify the proper court to declare the seats of the directors vacant and appoint others in their stead. The official functions of newly elected members attach when the full term of their predecessors has expired; they are then entitled to meet with the continuing members and participate in both the temporary and permanent organization of the board.¹ When a board is clothed with authority to decide upon all questions relative to the qualifications, elections, and returns of its members, its decision that a person is not entitled to a seat as a member is final; and a statement of the reasons, upon its records, cannot confer on the courts any authority to consider a question which the legislature has made it the duty of the school board to decide finally and without appeal.² A member appointed to fill a vacancy until the next election, "when such vacancy shall be filled by electing a person from the district in which the vacancy occurs to supply the same," does not hold his office till the time ordinary directors chosen at that election would begin to act, but his official relations cease with the occurrence of the election.³ A member appointed to serve until the municipal election next ensuing and the election and qualification of his successor continues in office notwithstanding an illegal election of a successor.⁴ An unaccepted resignation does not create a vacancy. It is the right and duty of a member to act until the acceptance of his resignation.⁵

§ 32. **Same. Requisites to valid action.**—"Trustees can act only in pursuance of law; they cannot be compelled to act unless the law is complied with in every substantial particular, nor are they permitted to act until it is so complied with. They have no power to waive anything that is necessary to compel their action. They may not as a matter of grace or favor take territory from one district and add it to another. They may do this [and similar acts] only in the cases provided by law; and whatever is essential to be done before they are bound to act, they must require before they do act."⁶ If a board of education is made a body corporate, individual members, acting separately, although a majority, cannot contract a debt nor direct the issuance of an order to pay it.⁷ The president and secretary cannot act for the board and without its concurrence in matters of contract.⁸ The concurrence of a majority

¹ *Bouton v. Rice*, 10 Phil. Reports, 559.

² *Peabody v. School Committee of Boston*, 115 Mass., 383.

³ *Commonwealth v. Thomas*, 10 Phil. Reports, 600.

⁴ *People v. Harvey*, 58 Cal., 337.

⁵ *Townsend v. School Trustees*, 41 N. J. L., 312.

⁶ *Potter v. Board of Trustees*, 10 Ill. App., 343, 346, per Wall, J.

⁷ *State ex rel. Steinbeck v. Treasurer of Liberty Township*, 22 Ohio St., 144; *Aikman v. School District of Denison*, 27 Kans., 129.

⁸ *School District v. Padden*, 89 Pa. St., 395.

when duly assembled is required to constitute a valid act;¹ the instruction of the court below to the jury, that, "If you find from the evidence that two of the [three] subdirectors * * * told the plaintiff that she could continue to teach the school under the contract, and that they would call a meeting to approve the same, this would be a ratification of said contract, and the defendant [district] would be bound thereby," has been declared an error.² In New Jersey it is one of the duties of incorporated trustees to employ teachers; and, in commenting upon it, the court said:³ "The duty of these trustees, in the selection of teachers, was not ministerial merely; they were obliged to examine into the qualifications of teachers and to exercise judgment and discretion in their selection; it was the performance of an important public duty, in the execution of which conference and comparison of judgments were necessary in reaching proper results. It was an act judicial in its nature, and the rule governing such bodies so acting is, unless special provision of law is otherwise made, that all must meet, or have notice to meet, when official action is intended." The action of a majority of a school board will not bind the district when other members of the board had no notice of the action and did not participate in it.⁴

§ 33. *Same.*—A majority of the votes cast will not be construed a majority of those present.⁵ If all members have had due notice, a majority of those present can legally authorize or perform an act, and a contract made by two of three members of a committee, where the third member either authorized them beforehand to make it or consented to it afterward, is valid.⁶ It was held in the last case cited⁶ that it was correct to instruct a jury that the contract of two members of a committee would be valid "if the third member was notified and requested to act and authorized the others to act without him; that there was no necessity of the committee assembling in a formal meeting at any particular place; that they were not a board, with a clerk, having stated times and places of meeting; and that, if they all consented to and had knowledge of the acts of the majority, that was sufficient, even if the third member had no notice to be present at the time the contract was executed." The proceedings of school boards will not be treated as void and set aside in collateral proceedings for mere irregularities which do not affect the substantial rights of parties.⁷ In a Missouri case the

¹ *Hazen v. Lerche*, 47 Mich., 626.

² *Herrington v. District Township of Liston*, 47 Iowa, 11.

³ *Townsend v. School Trustees*, 41 N. J. L., 313. See, also, *School Directors v. Jennings*, 10 Ill. App., 645, and *State v. Leonard*, 3 Tenn. Chan., 177.

⁴ *People v. Peters*, 4 Nebr., 254.

⁵ *Commonwealth v. Wickersham*, 66 Pa. St., 134.

⁶ *Wilson v. Waltersville School District*, 46 Conn., 400, 403. A school district committee is not a specially incorporated body in Connecticut, as are customarily boards of trustees, directors, &c., in other States.

⁷ *Rice v. McClelland*, 58 Mo., 116.

court said:¹ "There is no doubt that the action of the township board was irregular; but if all of their proceedings which are had in good faith can be set aside and treated as void in collateral proceedings for irregularities which do not affect the substantial rights of the parties interested, the whole beneficial objects of our school system will be paralyzed and rendered inefficient. The schools must necessarily in many townships be conducted by men not accustomed to legal certainty and forms, and their action should be upheld when good faith has been exercised unless it is in very glaring cases of wrong or where direct proceedings are instituted at the time to set their action aside."

§ 34. *Same. Power to employ and dismiss teachers.*—A board of school directors, though a corporation, is possessed of certain specially defined powers, and can exercise no others, except such as result by fair implication from the powers granted.² A board of education cannot delegate its powers. This was decided in interpreting an Ohio provision "that in each township district the local directors shall employ teachers of the schools in the subdistrict in which they reside," "have power to fix the salary or pay of said teachers," and "shall certify the amount due any teacher for services to the township clerk," &c. The court said:³ "The local directors of a township school district are not authorized to permit any person to teach or assist in teaching a public school under their control unless employed by them for that purpose. They have no power to delegate the employment of teachers for such schools to any other person or persons, nor to provide for the payment of a teacher thereof, in any other manner than that pointed out." A board authorized to establish and maintain a graded school system has power to appoint a superintendent of schools if his services are needed.⁴ If a board is empowered to hire teachers and is given the general care of the affairs of a school or a district, it has by implication the right to dismiss a teacher for good cause,⁵ not otherwise.⁶ Whether boards or committees can make a contract with a teacher for a longer time than to the end of their term of office has been generally decided in favor of such a contract.⁷ In a Connecticut case the court said: "It would be a novel and most mischievous doctrine that the officers who manage the governmental corporations of the State could have no power to make a contract which was not to be performed within the time for which

¹ *Rice v. McClelland*, 58 Mo., 121.

² *Peers v. Board of Education*, 72 Ill., 508.

³ *State ex rel. Werden v. Williams*, 29 Ohio St., 161, 163.

⁴ *Spring v. Wright*, 63 Ill., 90; *Stuart v. District 1 of Kalamazoo*, 30 Mich., 69.

⁵ *Bays v. State*, 6 Nebr., 167; *City of Crawfordsville v. Hays*, 42 Ind., 200.

⁶ *McCutcheon v. Windsor*, 55 Mo., 149. See § 56, *post*.

⁷ *Wilson v. East Bridgeport School District*, 36 Conn., 280; *Gillis v. Space*, 63 Barbour (N. Y.), 177; *Wait v. Ray*, 5 Hun (N. Y.), 649; *Stevenson v. School District*, 87 Ill., 255; *Davis v. School Directors*, 92 Ill., 293; *Loomis v. Coleman*, 51 Mo., 21.

they were elected to office.”¹ The court, in a New York case, said: ² “To limit the right to employ a teacher for a time not beyond the incumbent’s term of office would lead at times to great embarrassments and deprive the district of the opportunity to receive the services of desirable teachers. An indiscreet or corrupt officer may impose on the district, it is true. The inhabitants of a district and patrons of the school must confide this power somewhere, and their protection is in selecting competent and honorable officers.” In the case from which this quotation is taken a sole trustee hired a teacher for a school year commencing six days after the expiration of his term of office, and the contract was sustained. In Illinois a similar contract was not sustained, the court saying: ³ “There is doubtless no objection to contracts for the teaching of terms extending for a reasonable time beyond the current school year when such contracts are entered into in good faith, and not for the purpose merely of forcing upon the district an unsatisfactory teacher or defeating the will of the voters at the annual election. But we think the spirit and intent of the law are clearly repugnant to the idea that one board of directors may by contracts wholly to be carried out in the future divest future boards of directors of the power to select the teachers they shall desire for the terms to be commenced after their organization.” In Pennsylvania and Missouri it has been said that a contract for the employment of teachers should not extend beyond the current year.⁴

§ 35. *Same. Power to repair, expend money, &c.*—A board can bind a school district by a contract for repairs to a school-house, and that notwithstanding a given sum was voted at the annual meeting for specified repairs and had been so expended;⁵ the direction that “the district board shall have the care and keeping of the school-house,” the court said, “may not imply the right to remodel or improve, but it implies the right to do all that may come fairly and strictly within the term ‘repair.’” “‘Care and keeping,’ when used in connection with a trust like this, imply the right to preserve the building in the condition in which it is placed in their custody, to make good the waste and injury to which all buildings, and especially public buildings like a school-house, are subject.”⁶ A trustee, in purchasing a school site, may agree that the district shall build and repair the entire division fence.⁷ A board may bind a district for expenses incurred in securing the location of a highway by its school-house, such expenditures being allowed as “contingent

¹ *Wilson v. East Bridgeport School District*, 36 Conn., 282.

² *Gillis v. Space*, 63 Barbour (N. Y.), 180.

³ *Stevenson v. School District*, 87 Ill., 255, 258.

⁴ *School District of Dennison v. Padden*, 89 Pa. St., 395, 398; *Loomis v. Coleman*, 51 Mo., 21.

⁵ *Conklin v. School District*, 22 Kans., 521.

⁶ *Ibid.*, p. 526.

⁷ *Albright v. Riker*, 22 Hun (N. Y.), 367.

expenses necessary for keeping the schools in operation.”¹ A school board cannot create a debt by erecting a school-house. The charter of the St. Joseph (Mo.) board of public schools authorized it to make an annual estimate of the amount of money to be raised for the purpose of building, repairing, and furnishing school-houses, and required the county court to cause the same to be levied and collected. It was held that this provision was a limitation upon the power of the board to build school-houses, and that neither this clause nor another empowering the board “to do all lawful acts which may be lawful and convenient to carry into effect the objects of the corporation,” authorized the board to create a debt for that purpose and issue bonds for its payment.² When the qualified electors of school districts are intrusted with the power to determine what sort of school-houses shall be built and the extent of the expenditure therefor, a school board cannot increase the expenditure and bind the district for its payment.³ A board may ratify an informal contract for the erection of a school-house, if it is one they had power to make in the first instance.⁴ A contract for the erection of a school-house should be made with reference to the funds in the treasury for that purpose. The district board has no authority to draw orders for the payment of claims so arising on a fund which has been proposed but not raised.⁵ A board must provide for the payment of claims justly due and judgments, so far as it can, or the courts will be justified in compelling them to do their duty in the premises.⁶ Trustees or equivalent officers may take personal property by bequest for their schools. “Devises or bequests to trustees for the purposes of founding a library or school create legal and valid trusts.”⁷ Public officers cannot contract with themselves as individuals and cannot act judicially on their own interests. They should not occupy two conflicting offices.⁸ It is a violation of a trust for several persons holding together a fiduciary relation to others to contract with one or more of their own number in matters relating to such trust. The members of a school board being both public officers and trustees of school property, a contract between it and one of its members for the building of a school-house is voidable in equity by the district.⁹ It should not employ one of its number to

¹ *Flint River Independent District v. Kelley*, 55 Iowa, 568.

² *Erwin v. St. Joseph Board of Public Schools*, 2 McCrary (U. S. Circ. Ct.), 606.

³ *Gehling v. School District No. 56 of Richardson Co.*, 10 Nebr., 239. See *School Directors v. Miller*, 54 Ill., 338.

⁴ *Stevenson & Rice v. Township of Summit*, 35 Iowa, 462.

⁵ *School District 2 of Dixon Co. v. Stongh*, 4 Nebr., 357.

⁶ *Boynton v. Newton*, 34 Iowa, 510; *Stevenson & Rice v. Summit District Township*, 35 Iowa, 462; *Dannat v. Mayor*, 6 Hun (N. Y.), 88.

⁷ *Betts v. Betts*, 4 Abb. N. C. (N. Y.), 317, 409.

⁸ *Clement v. Everest*, 29 Mich., 21.

⁹ *Pickett v. School District 1 of Wiota*, 25 Wis., 551. A school committee can make a legal contract, and thereby bind the district, for a teacher's board, although the district voted at the annual meeting that the teacher should “board around in proportion to the grand list.” The court did not apply the rule that public officers can-

oversee the completion of a school-house abandoned by the contractor.¹ Public policy will not allow property held in trust by committees for public school purposes to be taken in execution at the suit of a creditor.²

§ 36. **Same. General liability.**—School officers are not personally and individually liable for the violation of contracts made in the course of their official duty. Where trustees had violated their contract with a teacher the court said "that the mere violation of the contract by the trustees in their official capacity, which they had entered into for the corporation, did not render them personally and individually liable."³ Being public officers and contracting as such, they are not personally responsible, it being the law that public officers are not liable on any contract they may make within the line of their duty.⁴ Suit will not lie against an unincorporated board of subdirectors.⁵ An agreement signed by directors in an official capacity and attested by their secretary does not bind the directors as individuals and is binding upon the district.⁶ School officers, in matters requiring the exercise of discretion, are not answerable in damages for honest errors of judgment. In Massachusetts it has been said that ordinarily school officers are not accountable to individuals who may be aggrieved for the manner in which they exercise their public functions.⁷

In Missouri the court said:⁸ "School directors are elected by the people, receive no compensation for their services, are not always or frequently men who are thoroughly informed as to the best modes of conducting schools. They are authorized, and it is their duty, to adopt reasonable rules for the government and management of the school, and it would deter responsible and suitable men from accepting the position if held liable for damages to a pupil expelled under a rule adopted by

not contract with themselves, to a school committee; but held that for boarding the teacher or furnishing supplies, &c., if there is no fraud, recovery for their value can be had from the district. *Brown v. School District*, 55 Vt.; 28 Al. L. J., 276.

¹ *Moore v. Independent District of Toledo City*, 55 Iowa, 654.

² *State v. Tiedemann*, 69 Mo., 306.

³ *Morrison et al. v. McFarland*, 51 Ind., 206, 210. See, also, *Butler v. Haines*, 79 Ind., 575.

⁴ *Robinson v. Howard*, 87 N. C., 151.

⁵ *Board of Directors v. Burton*, 26 Ohio St., 421. See, also, *Puterbaugh v. Township Board of Education*, 53 Mo., 472.

⁶ *Independent District of Mason City v. Reichard*, 50 Iowa, 98, 102.

⁷ *Learock v. Putnam*, 111 Mass., 499.

⁸ *Dritt v. Snodgrass*, 66 Mo., 286; s. c., 27 Am. Rep., 343. This case is sometimes cited as sustaining the doctrine that a school board cannot make rules governing the home conduct of pupils. The court said: "While this court might, on mandamus to compel the board and teacher to admit a pupil thus expelled [for attending a party, contrary to a rule of school], review the action of the board, and pass upon the reasonableness of the rule, which we do not, however, decide here, yet the doctrine that the courts could do this is very different from that which would hold the directors liable for damages for enforcing a rule honestly adopted."

them under the impression that the welfare of the school demanded it, if the courts should deem it improper."

In an Illinois case the court said:¹ "A mere mistake in judgment, either as to their duties under the law or as to facts submitted to them, ought not to subject such officers to an action. They may judge wrongly, and so may a court or other tribunal, but the party complaining can have no action when such officers act in good faith and in the line of what they think is honestly their duty. Any other rule might work great hardship to honest men who, with the best of motives, have faithfully endeavored to perform the duties of these inferior offices. Although of the utmost importance to the public, no considerable emoluments are attached to these minor offices, and the duties are usually performed by persons sincerely desiring to do good for their neighbors without any expectation of personal gains; and it would be a very harsh rule that would subject such officers to an action for damages for every mistake they may make in the honest and faithful discharge of their official duties as they understand them." It is not in the line of duty for trustees to refuse a person expelled from a school the quiet enjoyment of an exhibition held by a literary society of the school in the school building. In charging the jury in such a case² the judge gave an instruction that "to say that a student expelled from a school for disobedience to some municipal regulation should be excluded from attending a prayer meeting or public lecture in the school-house or college premises for all time to come, without any evidence of improper conduct or suspicion of improper purposes, would be an exercise of tyranny over his private rights not vested in the trustees, directors, or professors of our educational institutions." If a committee use violence in dispossessing a teacher, the person or persons so doing are individually liable.³

§ 37. **Same. Liabilities for negligence.**—A school board is not liable in its corporate capacity for negligence in the discharge of its official duty in the erection and maintenance of a common school building.⁴

In the case cited the court, in an opinion by Judge Ashburn, said:⁵ "Owing to the very limited number of corporate powers conferred on them, boards of education rank low in the grade of corporate existence, and hence are properly denominated *quasi*-corporations. This designation distinguishes this grade of corporations from municipal corporations, such as cities and towns acting under charters or incorporating statutes, which are vested with more extended powers and a larger measure of corporate life. This superior grade, from the nature of their organization, benefits received, and power to raise needed funds, are

¹ McCormick v. Burt, 95 Ill., 263, 266; s. c., 35 Am. Rep., 163. Opinion by Scott, J.

² Hughes v. Goodell, 3 Pittsburgh (Pa.), 264, 267. Per Johnson, J.

³ McCutcheon v. Windsor, 55 Mo., 149.

⁴ Finch v. Board of Education, 30 Ohio St., 37. Otherwise in New York.

⁵ *Ibid.*, p. 46. See *ante*, § 9 and note.

held responsible by the common law for private personal injuries caused by their own negligence or that of their servants, whilst the inferior grade of public *quasi*-corporations are liable for damages resulting from their negligence only where made so by express legislation. This grade includes the defendant [board of education]. It possesses but limited powers and small corporate life; a corporation in some sense political, but in no sense a municipal corporation." A different line of argument has been taken in New York, substantially as follows: In addition to being a governmental agency a board of education is also a corporation. This being so the courts have held it responsible for its own contracts;¹ being subject to such obligations, it is difficult to see why it should not be liable to an action for the neglect of a duty imposed upon it by law.² When it is specially incorporated it must be so; for in that way it is raised from a *quasi* into a responsible corporation. Its members become the living agents through which the corporation manifests itself, exercises its powers, and is liable for neglects.³ Thus the law stands in New York that a specially incorporated board of education is liable for negligence in the performance of its duties.⁴ As to what would constitute negligence in permitting a hole in the school-house floor to remain open, Judge Folger, in a case already cited, said:⁵ "If, in the proper discharge of their duty, they had gone to the building, and, looking for defects threatening immediate danger, had found this hole, then they would have had actual and personal knowledge of it, and would have been in fault, if having public means to do it they had not amended it. If so going they had made so careless an inspection as not to see what was so plain, then they would have been faulty. If they did not go at all and took no heed of the liability to danger from the general and particular defects of a building in their charge, which they kept open for the use of many people, then they egregiously failed in doing their duty."

§ 38. *Same. Removal from office.*—Proceedings to remove a school officer cannot justly be taken until the action of the proper authorities has been invoked by complaint of some definite violation of

¹ *Dannat v. Mayor of New York*, 6 Hun (N. Y.), 88.

² *Donovan v. Board of Education*, 44 N. Y. Sup. Ct., 53, 62.

³ *Bassett v. Fish*, 75 N. Y. App., 303, 312.

⁴ The difficulties in the way of obtaining damages may be illustrated by the case of *Thomas Donovan*. He fell into a hole in a school yard in New York City. His first suit was against the board of education. The case was dismissed, but a new trial was granted by the court in general term. The second appearance of the case in the reports (46 Sup. Ct., 111) was in a suit against ward trustees individually, in which it was decided they were not so liable, but were liable as a body; yet as a body they were a *quasi*-corporation, and thus not liable. At the third appearance of the suit (46 Sup. Ct., 565) *Donovan* was nonsuited in an action against the board for not showing any legal connection between it and the acts of the trustees through which the injury occurred. The fourth appearance of the suit was when the last decision was affirmed by the court of appeals. *Donovan v. McAlpin*, 85 N. Y. App., 185; s. c., 39 Am. Rep., 649.

⁵ *Bassett v. Fish*, 75 N. Y. App., 310.

duty.¹ The notice of the time and place of the hearing may be agreed upon and issued by the board having the power of removal without a meeting of its members.² A wilful refusal to sign a contract made with a teacher, or to accept and file it, or to draw orders for a teacher's pay during the currency of the contract, and an obstinate neglect to furnish necessary school-house supplies may be taken into account in proceedings for a removal;³ for, as Judge Campbell said,⁴ "Nothing is more likely to injure schools than meanness and unfairness in dealing with teachers." An act authorizing the removal of a school officer by the township board for illegal use of school moneys and for the neglect or refusal to discharge a duty does not warrant the removal of an officer for hiring her husband and agreeing to pay him more than was necessary to secure a good or better teacher,⁵ nor the removal of a director for conspiring with her to do so.⁶ In such cases the township board is the exclusive judge of facts, and its proceeding can be reviewed by courts only on questions of law.⁷ If charges set up against a school officer are admitted by him, and he expressly desires the board to act on them without delay, he cannot afterwards complain that they did so.⁸

§ 39. **Treasurer.**—The reception of a treasurer's bond by the board of education is a sufficient approval of him.⁹ He may not receive for school moneys anything which the law has not authorized to be so received, and if he does so and receipts for taxes on that account he must make good the amount.¹⁰ He is the only proper custodian of school moneys.¹¹ His liability is absolute for all funds which come into his hands in his official capacity, regardless of the cause of, or circumstances attending, loss.¹² He is not entitled to credit for sums paid to a township in excess of the funds he has received for it.¹³ The failure of a bank where he had deposited funds does not release him, though he was not guilty of any want of care or prudence in failing to ascertain its financial condition.¹⁴ The school district has no authority to release him from liability for money lost or misapplied by him.¹⁵ A stipulation in his bond against

¹ *Geddes v. Thomastown*, 46 Mich., 316.

² *Wenzel v. Dorr Township Board*, 49 Mich., 25.

³ *Geddes v. Thomastown*, 46 Mich., 316.

⁴ *Ibid.*, p. 319.

⁵ *Hazen v. Town Board of Akron*, 48 Mich., 188.

⁶ *McLaren v. Town Board of Akron*, 48 Mich., 189.

⁷ *Hamtramck v. Holihan*, 46 Mich., 127.

⁸ *Geddes v. Thomastown*, 46 Mich., 316.

⁹ *Bartlett v. Board of Ed.*, 59 Ill., 364. See, also, § 30, *ante*.

¹⁰ *Jones v. Wright*, 34 Mich., 371; *Lovington v. School Trustees*, 99 Ill., 564.

¹¹ *Adams v. State*, 82 Ill., 132.

¹² *Dist. Township of Bluff Creek, v. Hardinbrook*, 40 Iowa, 130.

¹³ *State v. Cook*, 72 Mo., 496.

¹⁴ *State v. Powell*, 67 Mo., 395; *Ward v. School Dist. 15 of Colfax Co.*, 10 Nebr., 293.

¹⁵ *Ward v. School District 15 of Colfax Co.*, 10 Nebr., 293. For certain duties of county and district treasurers in Nebraska, relative to school funds, see *Donelly v. Duran*, 11 Nebr., 283.

liability for non-performance occasioned by inevitable accident does not protect him or his sureties.¹ The liability of a township treasurer is distinct from his ordinary liability for township moneys, and he cannot be released from duties or any way affected by the action of the township board.² In an Iowa case, the court commented on the necessity of a strict compliance with the terms of the bond of a treasurer, as follows:³ "He is bound by the obligation of the bond, not to exercise due care and diligence in the discharge of this duty, but to perform it absolutely, without conditions or exceptions. He is to hold the money of the district. This is the provision of the law. His contract, expressed in the bond, binds him to the discharge of this duty. He will not be relieved from the contract by showing any degree of diligence or care which falls short of absolute compliance with the terms of his contract. His liability rests upon the conditions of his bond, and if by them he is required to do an act which, without his fault, becomes impossible on account of anything occurring subsequently to the contract, he will not be released. These rules are applicable to all contracts, and the public interest demands that, at this day, when public funds in such vast amounts are committed to the custody of such an immense number of officers, they should not be relaxed when applied to official bonds. A denial of their application in such cases would serve as an invitation to delinquencies which are already so frequent as to cause alarm."

§ 40. **Assessors.**—The duties customarily assigned to treasurers are sometimes performed by assessors.⁴ In such a case a showing of want of funds is a complete answer to an application for an order of court requiring the assessor of a school district to pay an order drawn on him in favor of a teacher.⁵ An assessor cannot lawfully withhold district funds from his successor on the ground that he is entitled to be previously personally notified officially. If he does so, suit may be brought against him personally as well as upon his bond; for "the bond is required in order to afford other and greater security than the individual responsibility of the person serving, but not to supersede his separate individual responsibility."⁶ He cannot defend his refusal to turn over to his successor the funds in his official custody on any questions of the regularity

¹ District Township of Union v. Smith, 39 Iowa, 9. Sureties on a county treasurer's general bond, conditioned according to the statute for the performance of his official functions, are not liable for his default in relation to the school fund, which is protected by the special bond prescribed by the statute imposing his duties respecting this fund. State v. Felton, 59 Miss., 402.

² Jones v. Wright, 34 Mich., 371.

³ District Township of Taylor v. Morton, 37 Iowa, 553.

⁴ For instance, the Michigan school law provides that "the assessor shall pay all orders of the director, countersigned by the moderator, out of any moneys in his hands belonging to the fund upon which such orders may be drawn." Com. Laws, 1871, p. 1196.

⁵ Allen v. Frink, 32 Mich., 96.

⁶ Mason v. Fractional District, Scio and Webster, 34 Mich., 230.

of the proceedings whereby the funds came into his possession.¹ If the school district was not legally established, assessors are liable for assessing and issuing a warrant for the collection of a school district tax, although it was certified to them by one acting as clerk of the district that the tax had been voted by the district.²

§ 41. **Collector.**—A collector has no right to execute a warrant until he has given a bond. He is not in default for not giving a bond before the trustees have limited the time and fixed the amount in which it is to be given; nor is he in default concerning moneys until a proper order is drawn upon him.³ If he sell property for an unpaid tax without fulfilling the requirements of the law, he is liable as a trespasser, and the sale is void.⁴ His sureties are not liable for any breach of condition happening after the expiration of his term of office, although the officer may be continued under the same or a new appointment or election.⁵

CHAPTER VI.—SCHOOLS AND STUDIES.

§ 42. **Public schools in general.**—A public institution of learning is one which is controlled by the State through its agents, in which the State has a paramount interest and right of property, and which depends upon the State for its existence.⁶ The word “common” used in connection with schools has no reference to the studies taught, but means “open to all, belonging to the public.”⁷ Parochial schools, though gratuitously opened to all, are not free public schools; for they are not established, maintained, and regulated under the statute laws of the State.⁸ Some light is thrown on the question of what constitutes a school by the following statement in a recent New York case:⁹ “Although two departments are in the same building and each is recognized by the number which marks the building, these departments are, in fact, entirely separate schools, as much so as if they occupied separate buildings. Each has its own principal, vice principal, and teachers, and occupies its distinct part of the building, as does a primary school when in the same building with the grammar school.”

An institution principally supported by a State must administer its affairs according to the principles of the educational system of the State. This was affirmed in a recent case in Indiana. The court, by Niblack, J., said:¹⁰ “Purdue University constitutes no part of our system of common schools and has no direct connection with that system;

¹ *Mason v. Fractional District, Scio and Webster*, 34 Mich., 228.

² *Judd v. Thompson*, 125 Mass., 553.

³ *Woodhull v. Bohenblost*, 4 Hun (N. Y.), 399.

⁴ *Bedell v. Barnes*, 17 Hun (N. Y.), 353. See, also, § 17, *ante*.

⁵ *Overton v. Garrett*, 5 Lans. (N. Y.), 156.

⁶ *State ex rel. Straight University v. Graham*, 25 La. Ann., 440.

⁷ *Roach v. St. Louis School Board*, 7 Mo. App., 567.

⁸ *St. Joseph's Church v. Assessors*, 12 R. I., 19.

⁹ *Betts v. Betts*, 4 Abbott's New Cases, 414.

¹⁰ *State ex rel. Stallard v. White et al.*, 82 Ind., 283; s. c., 42 Am. Rep., 496.

but it is an institution of learning primarily endowed by Congress [under the agricultural college land grant of 1862], and continued in existence very largely by appropriations made by the general assembly of this State. It is, therefore, an educational institution sustaining relations to the people at large analogous to those occupied by other public schools and colleges of the State maintained at public expense, and one in which all the inhabitants of the State have a common interest. The general principles underlying the educational system of the State are, consequently, applicable to the government and control of Purdue University, and, in the absence of express legislative provisions, must be invoked in determining the powers which that institution may exercise."

§ 43. **High schools.**—A decision sustaining the right of a school district to levy taxes for the support of a high school in which ancient and modern languages were taught was rendered in Michigan not long ago. In giving the opinion of the court, Judge Cooley said:¹ "Neither in our State policy, in our constitution, nor in our laws, do we find the primary school districts restricted in the branches of knowledge which their officers may cause to be taught, or the grade of instruction that may be given, if their voters consent in regular form to bear the expense and raise the taxes for the purpose." In Illinois it has been decided that the high school is a legitimate part of the system of schools established by virtue of a clause in the constitution which says: "The general assembly shall provide a thorough and efficient system of free schools whereby all the children of this State may receive a good common school education." The court remarked:² "While the constitution has not defined what a good common school education is and has failed to prescribe a limit, it is no part of the duty of the courts of the State to declare by judicial construction what particular branches of study shall constitute a common school education." Similar ground has been taken in Mississippi.³ If an act proposed to be done by the proper officers in establishing a high school be within the scope of the authority delegated, it is not competent for even a court of equity to interfere with the exercise of discretion given by statute, unless it be clearly shown that the power has been or is about to be corruptly used.⁴

§ 44. **Colored schools.**—The decisions relative to the right to establish separate schools for colored children appear to justify the following propositions: First, that no person can be deprived of equal educational privileges with the whites because he is colored.⁵ Second, that the estab-

¹ *Stuart v. District 1 of Kalamazoo*, 30 Mich., 69, 84.

² *Richards v. Raymond*, 92 Ill., 612, 618. See *Roach v. St. Louis School Board*, 7 Mo. App., 567.

³ *Otken v. Lamkin*, 56 Miss., 758.

⁴ *Wiley v. School Commissioners of Alleghany Co.*, 51 Md., 401.

⁵ *State v. Duffy*, 7 Nev., 342; s. c., 8 Am. Rep., 713; *Ward v. Flood*, 48 Cal., 36; s. c., 17 Am. Rep., 405; *United States v. Buntin*, 10 Fed. Rep., 730; *People v. Easton*, 13 Abb. Pr. N. s. (N. Y.), 159, and other cases.

lishment of separate schools for colored youth is not a question to which the provisions of the fourteenth amendment to the Constitution of the United States apply.¹ Third, that States can direct or allow the existence of such schools.² Fourth, that school boards cannot establish such schools when the legislature has not favored their existence.³ Quotations are given sustaining and explaining these four propositions:

"The exclusion of colored children from schools where white children attend as pupils cannot be supported except * * * where separate schools are actually maintained for the education of colored children; and unless such separate schools be, in fact, maintained, all children of the school district, whether white or colored, have an equal right to become pupils at any common school organized under the laws of the State."⁴ "If, as has been contended, you find that said colored school was so remote from the prosecuting witness's residence that he could not attend it without going an unreasonable and oppressive distance; that he was thus placed at a material disadvantage with his white neighbors; that the school did not offer substantially the same facilities and educational advantages that were offered in the school established for the white children, and from which he had been excluded — then and in that event he was entitled to admission in said last named school, and his exclusion therefrom was a denial and a deprivation of his constitutional right."⁵

§ 45. *Same. Separate schools for the colored race not forbidden by the fourteenth amendment.*—"It is not within the sphere of the National Government to regulate education."⁶ "Conceding that the fourteenth amendment not only provides equal securities for all, but guarantees equality of rights to the citizens of a State as one of the privileges of citizens of the United States, it remains to be seen whether this privilege has been abridged in the case before us. The law in question [establishing separate schools for colored children] surely does not attempt to deprive colored persons of any rights. On the contrary it recognizes their right, under the constitution of the State, to equal common school advantages and secures to them their equal proportion of the school fund. It only regulates the mode and manner in which this right shall be enjoyed by all classes of persons."⁷ "It will

¹ *State v. McCann*, 21 Ohio St., 198; *Dallas v. Fosdick*, 40 How. Pr. (N. Y.), 249; *Ward v. Flood*, 48 Cal., 36; *contra*, *Commonwealth (Pa.) v. Davis*, 10 W. N. C., 156.

² *Cory v. Carter*, 48 Ind., 327; s. c., 17 Am. Rep., 738; *People v. Gallagher*, 11 Abb. N. C., 187; and cases above. The case of *People v. Gallagher* was affirmed by the New York court of appeals, October 9, 1883, two judges dissenting.

³ *People v. Board of Education*, 101 Ill., 308; s. c., 40 Am. Rep., 196; *Board v. Tinnon*, 26 Kans., 1; *Dove v. Independent School District*, 41 Iowa, 689, following *Clark v. Board of Directors*, 24 Iowa, 266; *Kaine v. Commonwealth (Pa.)*, 27 Al. L. J., 283. The last case was decided in December, 1882.

⁴ *Ward v. Flood*, 48 Cal., 56; s. c., 17 Am. Rep., 417. Opinion by Wallace, C. J.

⁵ *United States v. Buntin*, 10 Fed. Rep., 735. Charge to jury by Baxter, C. J.

⁶ *People v. Gallagher*, 11 Abb. (N. Y.) N. C., 215.

⁷ *State v. McCann*, 21 Ohio St., 210. Opinion by Day, J.

indeed be readily conceded that the privilege accorded to the youth of the State, by the law of the State, of attending the public schools maintained at the expense of the State is not a privilege or immunity appertaining to a citizen of the United States as such ; and it necessarily follows, therefore, that no person can lawfully demand admission as a pupil in any such school because of the mere status of citizenship ; and it is perhaps hardly necessary to add that assuredly no person can be said to have been deprived of either life, liberty, or property because denied the right to attend as a pupil at such schools, however obviously insufficient and untenable be the ground upon which the exclusion is put. The last clause of so much of the amendment as has been recited [last sentence, section 1, fourteenth amendment], however, forbids the State to 'deny to any person within its jurisdiction the equal protection of the laws.' * * * The protection of law is indeed inseparable from the assumed existence of a recognized legal right, through the vindication of which the protection is to operate. To declare, then, that each person within the jurisdiction of the State shall enjoy the equal protection of its laws, is necessarily to declare that the measure of legal rights within the State shall be equal and uniform ; * * * and in the circumstance that the races are separated in the public schools there is certainly to be found no violation of the constitutional rights of the one race more than of the other, and we see none of either, for each, though separated from the other, is to be educated upon equal terms with that other, and both at the common public expense."¹ "Any classification which preserves substantially equal school advantages is not prohibited by either the State or Federal Constitution, nor would it contravene the provisions of either."²

§ 46. **Same. Separate schools for the colored race a subject for State legislation.**—"The classification of scholars on the basis of race or color and their education in separate schools involve questions of domestic policy which are within the legislative discretion and control, and do not amount to an exclusion of either class. In other words, the placing of the white children of the State in one class and the negro children of the State in another class, and requiring these classes to be taught separately, provision being made for their education in the same branches, according to age, capacity, or advancement, with capable teachers, and to the extent of their pro rata share in the school revenue, does not amount to a denial of equal privileges to either or conflict with the open character of the system required by the constitution. The system would be equally open to all. The tuition would be free. The privileges of the schools would be denied to none."³ "It must be remembered that, unless some statute can be found authorizing the establishment of sep-

¹ Ward v. Flood, 48 Cal., 49, 50, 52 ; s. c., 17 Am. Rep., 411, 412, 414.

² State v. McCann, 21 Ohio St., 211.

³ Cory v. Carter, 48 Ind., 362 ; s. c., 17 Am. Rep., 764. Opinion by Buskirk, J.

arate schools for colored children, no such authority exists."¹ "All the youth are equal before the law, and there is no discretion vested in the board of directors or elsewhere to interfere with or disturb that equality. The board of directors may exercise a uniform discretion, equally operative upon all, as to the residence, or qualifications, or freedom from contagious disease, or the like, of children, to entitle them to admission to each particular school; but the board cannot in their discretion, or otherwise, deny a youth admission to any particular school because of his or her nationality, religion, color, clothing, or the like."² "Under our law [requiring directors to secure to all children the right and opportunity to an equal education in free schools], aside from the fourteenth amendment, directors of schools and boards of education, like defendants in error, have no discretion to deny a pupil of the proper age admission to the public schools on account of nationality, color, or religion."³

§47. *Studies.*—The principal questions under this head which have been before the courts recently are how far a parent can control the studies of his child and whether "other branches," mentioned in a statute after an enumeration of English studies, would include German. The court answered the latter question affirmatively, taking judicial notice of the practice and policy of the State to allow the study of German and of the omission of the legislature to prohibit the instruction of pupils in that language.⁴ The former question has been answered in two States, Illinois and Wisconsin. In Illinois the court said:⁵ "No parent has the right to demand that the interests of the children of others shall be sacrificed for the interests of his child; and he cannot, consequently, insist that his child shall be placed or kept in particular classes, when by so doing others will be retarded in the advancement they would otherwise make; or that his child shall be taught studies not in the prescribed course of the school or be allowed to use a text book different from that decided to be used in the school, or that he shall be allowed to adopt methods of study that interfere with others in their study. * * * The policy of our law has ever been to recognize the right of the parent to determine to what extent his child shall be educated during minority, presuming that his natural affections and superior opportunities of knowing the physical and mental capabilities and future prospects of his child will insure the adoption of that course which will most effectually promote the child's welfare. The policy of

¹ Board of Education v. Tinnon, 26 Kans., 23. Per Valentine, J., Brewer, J., dissenting.

² Clark v. Board of Directors, 24 Iowa, 277. Opinion by Cole, J. Wright, J., dissented.

³ People v. Board of Education, 101 Ill., 316; s. c., 40 Am. Rep., 201. Opinion by Craig, C. J. Walker, J., dissented. See State v. Grubb, 85 Ind., 213.

⁴ Powell v. Board of Education, 97 Ill., 375; s. c., 37 Am. Rep., 123.

⁵ Trustees of Schools v. People, 87 Ill., 303, 307; s. c., 29 Am. Rep., 55.

the school law is only to withdraw from the parent the right to select the branches to be studied by the child to the extent that the exercise of that right would interfere with the system of instruction prescribed for the school, and its efficiency in imparting education to all entitled to share in its benefits. No particular branch of study is compulsory upon those who attend school." In Wisconsin the court said :¹ "Now, we can see no reason whatever for denying to the father the right to direct what studies, included in the prescribed course, his child shall take. He is as likely to know the health, temperament, aptitudes, and deficiencies of his child as the teacher, and how long he can send him to school. All these matters ought to be considered in determining the question what particular studies the child should pursue at a given term."

§ 48. **Text books.**—It has been decided in Minnesota that the legislature may order a contract to be made with a single individual to supply the ordinary common schools of the State with text books of prescribed kinds and qualities at rates not to exceed a specified limit. The contract is not invalid, though it may deprive the patrons of the schools of the benefits of an open and competitive market in which to make purchases, and thus impose an additional burden upon the enjoyment of public school privileges, because it invades no legal rights and violates no constitutional provisions.² When text books are to be changed due notice should be given; the publication of the proposed change as a matter of news is not sufficient.³ A clause inserted in a newly adopted constitution, declaring that certain officers "shall adopt a series of text books for the use of the common schools within their respective jurisdictions," is self executing and supersedes all previous statutes on the subject.⁴ The duty imposed by such a regulation concerning text books ought to be performed without unnecessary delay.⁵ A recent Kansas case seems to take the ground that the adoption by a board of a series of readers, of which there were several widely varying editions, would be void for uncertainty, and that the court would hear an application for an injunction of the use of a later adopted series, not from a private citizen, but only from the proper public officer; but an injunction might, under some circumstances, be allowed at the instance of a private individual to restrain the use of the later series so far as it interfered with the use of the former series by the complainant's child.⁶

¹ *Morrow v. Wood*, 35 Wis., 64; s. c., 17 Am. Rep., 741.

² *Curryer v. Merrill*, 25 Minn., 1, 7; s. c., 33 Am. Rep., 450.

³ *People v. State Board of Education*, 49 Cal., 684.

⁴ *People v. Board of Education of Oakland*, 55 Cal., 331.

⁵ *State v. School Directors of Springfield*, 74 Mo., 21.

⁶ *School District v. Shadduck*, 25 Kans., 467.

CHAPTER VII.—TEACHERS.

§ 49. **License prerequisite to a valid contract.**—A contract to employ a person to teach who has not a certificate or license is void in Illinois, Indiana,² and Minnesota;³ and procuring a certificate after entering into such an agreement does not render it a valid contract. In Ohio it has been decided that a statutory provision similar to the one prohibiting the employment of unlicensed teachers in the States above mentioned does not render invalid a contract of employment entered into with a teacher before he obtains a certificate, provided he obtains it before commencing to teach. The court said:⁴ “The law forbids the *employment* of a teacher who has not a certificate. The teacher is not ‘employed,’ within the meaning and intent of this provision, until he engages in the discharge of his duties as teacher. The mischief intended to be guarded against was the teaching of a school by an incompetent person, and not the making of the contract by an incompetent person.” In Vermont, if a person commences teaching without a certificate and continues to teach after obtaining one, he is considered to have made a new contract, commencing at the time when the certificate was obtained and having the same terms as the one under which teaching was begun.⁵ In Minnesota a person commenced teaching under a verbal contract. He taught three weeks, then obtained a certificate and made a written contract to run three months from the time he commenced teaching. It was held that he was entitled to wages at the stipulated rate after the certificate was obtained and the written contract made, and to no remuneration for the previous three weeks.⁶ In an Illinois case a certificate was not obtained until the middle of the term. A new contract was entered into at that time to pay the teacher double wages for the remainder of the term. This was considered an attempt to do indirectly what there was no power to do directly; and therefore the contract was held void, as was the original contract.⁷

§ 50. **Contracts.**—A contract is to be construed in reference to contemporaneous laws and usages. For example, in Michigan the law directs that a contract of hiring to teach “shall require the teacher to keep a correct list of the pupils and the age of each attending the school, and the number of days each pupil is present, and to furnish the director with a correct copy of the same at the close of the school.” The court

¹ Wells v. People, 71 Ill., 532; Stevenson v. School Directors, 87 Ill., 255; School Directors v. Jennings, 10 Ill. App., 643.

² Putnam v. Town of Irvington, 69 Ind., 80; Butler v. Haines, 79 Ind., 575.

³ Ryan v. School District 13, 27 Minn., 433. See Blondon v. Moses, 29 Hun (N. Y.), 606.

⁴ School District 2 of Oxford v. Dilman, 22 Ohio St., 194.

⁵ Scott v. School District 2 of Fairfax, 46 Vt., 452.

⁶ McKinney v. School District 45 of Dakota Co., 20 Minn., 72.

⁷ Wells v. People, 71 Ill., 532.

thought that it could not be doubted these requirements, though not mentioned in his contract, imposed upon the teacher of every public district school the duty of compliance with them, and that they become a part of a teacher's contract, whether inserted in it or not.¹ The contract of a teacher is for his own personal services.² The nature and quality of those services were admirably described by Judge Worden in an Indiana case. In giving the opinion of the court, he said:³ "A teacher doubtless, like a lawyer, surgeon, or physician, when he undertakes an employment, impliedly agrees that he will bestow upon the service a reasonable degree of learning, skill, and care. When he accepts an employment as teacher in any given school, he agrees by implication that he has the learning necessary to enable him to teach the branches that are to be taught therein, as well as that he has the capacity in a reasonable degree of imparting that learning to others. He agrees, also, that he will exercise a reasonable degree of care and diligence in the advancement of his pupils in their studies, in preserving harmony, order, and discipline in the school, and that he will himself conform as near as may be to such reasonable rules and regulations as may be established by competent authority for the government of the school. He also agrees, as we think, by a necessary implication, that while he continues in such employment his moral conduct shall be in all respects exemplary and beyond just reproach."

The hiring of a substitute by a teacher under any ordinary circumstances is a breach of contract, though the competency of the substitute is unquestioned.⁴ A teacher may not ordinarily absent himself by leave of individual members of a school board.⁵

§ 51. *Same.*—A teacher's contract is oftentimes binding upon a district though it is irregular in some respect, as when it was made with part of a board⁶ or was verbally made with a subcommittee instructed by the board to employ a teacher.⁷ The law implies a contract from the doing and accepting of work, and a district cannot, on the ground that he has not complied with the law requiring a written contract,⁸ have the benefit of a teacher's services without remunerating him. Where there is a written contract it cannot be orally contradicted.⁹ A contract with a township board to teach in a subdistrict over which a lower court has decided that the board has control, is not invalidated by the

¹ *Everett v. School District 2 of Cannon*, 30 Mich., 249, 252.

² *School Directors v. Hudson*, 88 Ill., 563.

³ *City of Crawfordsville v. Hays*, 42 Ind., 209, 210.

⁴ *School Directors v. Hudson*, 88 Ill., 563.

⁵ *State v. Leonard*, 3 Tenn. Chan., 177.

⁶ *Adkins v. Mitchell*, 67 Ill., 511.

⁷ *Wilson v. Board of Education*, 63 Mo., 167.

⁸ *Jones v. School District 47 of Neosho County*, 8 Kans., 362; *Monaghan v. School District*, 38 Wis., 100.

⁹ *Mann v. Independent School District of Le Grand*, 52 Iowa, 130.

reversal of that decision by the supreme court.¹ Contracts with *de facto* officers are binding upon the body they represent;² but contracts entered into with a number of persons acting as a board are not binding upon the school district when there is in existence at the same time another acting board who are so *de jure* and who have notified the persons contracting with the other board not to carry out their contracts. Which of the boards is such of right is a question for the courts to decide.³ The part performance of an oral contract, in a case where the law requires a written one, is a ratification of it and renders a district liable for any breach of it.⁴ There is no contract, express or implied, between a teacher and a pupil, and, in the absence of trespass, the latter cannot sue the former for refusing to hear his recitations. The teacher's contract is with the directors alone.⁵ A minor who possesses the essential qualifications in regard to moral character, learning, and ability, and who has obtained the requisite certificate, may, with the assent of his parents, enter into a valid contract to teach school. A father is charged with certain duties as respects his child, as education, support, and protection, and, as some compensation for these duties, he has a right to claim the earnings of his child in the absence of proof of relinquishment.⁶

§ 52. **Recovery of wages. When impossible.**—A teacher cannot recover for services rendered after the appropriation out of which payment of them must be made is exhausted when the law of the place "is clear that no contract or debt can be created without the authority of the

¹ Hall & Julius v. District Township of Pleasant Valley, 41 Iowa, 494.

² School District 25 of Hall County v. Cowee, 9 Nebr., 53; Woodbury v. Knox, 74 Me., 462; Burditt v. Barry, 6 Hun (N. Y.), 657. "The doctrine is everywhere declared that the acts of *de facto* officers, as distinguished from the acts of mere usurpers, are valid." 1 Dillon's Municipal Corporations, § 276.

³ Genesee Township v. McDonald, 98 Pa. St., 444.

⁴ Cook v. Independent School District of North McGregor, 40 Iowa, 444. A dissenting opinion by Beck, J., held that a verbal contract, being unauthorized by law, was a nullity and could not be made of effect by subsequent ratification.

⁵ Stuckey v. Churchman, 2 Ill. App., 584.

⁶ Monaghan v. School District 1 of Randall, 38 Wis., 100. The following notes will be of value in connection with this decision:

(1) "In general, when a contract is not manifestly for the benefit of an infant, he may avoid it as well in equity as at law, and when it can never be for his benefit it is utterly void." Schouler's Domestic Relations, § 401.

(2) "All other things being equal, the father is actually entitled to the value of his child's labor and services until the latter becomes of age." Ibid, § 252.

(3) "The parent may emancipate his child, and this may be done by refusing him support, or denying him a home, or compelling him to labor abroad for his own living." Taylor on Infancy and Coverture, p. 200.

(4) "And if the parent authorize a third person to employ and pay the child, payment to the child and not to the parent will be a sufficient discharge. Such an agreement may be in express terms or it may be implied from circumstances." Schouler's Domestic Relations, § 252 a.

councils and an appropriation to meet it."¹ Wages cannot be recovered on a void contract. In Iowa a contract must be approved by the president of the school board; and where he refused to do so a teacher was not allowed to recover although she proceeded to teach under control of the subdirector hiring her and completed her term of instruction.² If a teacher is discharged on the ground of incompetency he must use all proper means for his vindication and reinstatement before the courts will entertain a suit for the recovery of wages.³ Then the question of competency will be one for the jury.⁴ Of course he cannot recover if found incompetent; for, "if a teacher, although he has been employed for a definite length of time, proves to be incompetent and unable to teach the branches of instruction he has been employed to teach, either from a lack of learning or from an utter want of capacity to impart his learning to others, or if in any other respect he fails to perform the obligations resting upon him as such teacher, whether arising from the express terms of his contract or by necessary implication, he has broken the agreement on his part."⁵ For teaching done in defiance of a decision of removal no right whatever accrues to compensation out of the public fund.⁶ In a Mississippi case a teacher recovered wages for services rendered after the revocation of his license by the county superintendent in opposition to the wishes of the contracting board of trustees, the court saying that "after the vacation of the certificate the relator was not competent to make a new engagement to teach, but could continue to execute an existing contract, unless the local trustees coöperated with the superintendent to vacate the contract."⁷

§ 53. *Same.*—The failure to make required reports destroys the right to recover wages, and a statute requiring teachers to make specified entries in a register applies to a principal of a number of schools, although he has done no actual teaching.⁸ If the omission of entries is through no fault of the teacher, it will not prevent the recovery of wages. This rule was stated as follows in a case in which a teacher did not complete her school and made none of the entries required by

¹ *Perrott v. Philadelphia*, 83 Pa. St., 479.

² *Place v. District Township of Colfax*, 56 Iowa, 573. Adams, C. J., dissented on the grounds that it was the ministerial duty of the president of the board to approve the contract and that the district, by receiving the teacher's services, became liable for her wages.

³ *Kirkpatrick v. Independent School District of Liberty*, 53 Iowa, 585; *Pierce v. Beck*, 61 Ga., 413.

⁴ *McCutcheon v. Windsor*, 55 Mo., 149; *Ewing v. School Directors*, 2 Ill. App., 458.

⁵ *City of Crawfordsville v. Hays*, 42 Ind., 210. See § 24, *ante*.

⁶ *Pierce v. Beck*, 61 Ga., 413.

⁷ *Jamison v. Senter*, 56 Miss., 194. This decision was under a law providing that a county superintendent alone might revoke a license but could annul a contract only with the concurrence of the trustees.

⁸ *School Commissioners of Alleghany Co. v. Adams*, 43 Md., 349.

statute to be made at the close of a school:¹ "The close of school there meant must be the close of the term of school; for the answers to the inquiries required to be entered relate to the whole term, and could not be answered till the close of it. If the school stopped before the close of the term through the fault of the teacher, then the plaintiff would not be entitled to recover, whether she made the necessary entries in the register or not; but if the prudential committee, by his own conduct, without her fault, prevented the close of the term being reached by her, so she could make the entries, then the want of them would not prevent the recovery of the wages."

§ 54. *Same. When possible.*—A teacher can recover wages for services rendered while he holds a certificate irregularly given. The certificate is in the nature of a commission, and cannot be attacked collaterally, though it does not correspond to the form in which the statute says it *may* be drawn and was given without an examination of the candidate.²

In a Nebraska case a teacher was without a certificate three months during a term of nine months and recovered wages. "It is true," said the court, "that the statute prohibits the school board from paying from the school fund any but qualified teachers and makes a certificate or diploma, issued in the manner directed, the only evidence of such qualification. The prohibition of the statute is, however, upon the district board and not upon the teacher."³

If a teacher lawfully employed is dismissed without just cause, he may recover wages for the whole time for which he was employed. The court in Wisconsin laid down the rule as follows: "Unless the discharge of the teacher be justified by proof of the fact that he is not properly performing his contract on his part, the district becomes liable to the teacher for such damages as he may sustain by such discharge in the loss of wages for the residue of his term."⁴ Where a teacher was kept from rendering services by the burning of the school-house, but was ready to teach whenever a place should be provided and filled out her register at the end of the time specified, it was held that full wages could be recovered.⁵

¹ *Scott v. School District 2 of Fairfax*, 46 Vt., 452, 457. Under an indictment charging a school teacher with perjury in swearing to his monthly report to the county superintendent, which represented that certain named pupils each attended school a certain number of days, whereas none attended as stated, he can be convicted on evidence that one did not attend. *Page v. State*, 59 Miss., 474.

² *School District v. Sterricker*, 86 Ill., 595. In Missouri the forging of a teacher's certificate is a penal offence. *State v. Grant*, 74 Mo., 33.

³ *School District v. Estes*, 13 Nebr., 52.

⁴ *Scott v. Joint School District*, 51 Wis., 554, 557. A teacher can only recover as damages the difference between the stipulated wages and what he earned, or might have earned, at a similar employment in his own vicinity during the time covered by his contract. See 2 Greenleaf on Evidence, § 161 a; 2 Chitty on Contracts, 11th Am. ed., p. 855, *note*.

⁵ *Cashen v. School District 12 of Berlin*, 50 Vt., 30.

§ 55. *Same.*—A teacher can recover wages for time included in legal holidays. Chief Justice Campbell, of Michigan, said in a recent case:¹ "In regard to deductions for holidays we are of opinion that school management should always conform to those decent usages which recognize the propriety of omitting to hold public exercises on recognized holidays, and that it is not lawful to impose forfeitures or deductions for such proper suspension of labor. Schools should conform to what may fairly be expected of all institutions in civilized communities. All contracts for teaching during periods mentioned must be construed of necessity as subject to such days of vacation, and public policy as well as usage requires that there should be no penalty laid on such observances." If a teacher is employed for a definite time, and during the period of his employment the district officers close the schools on account of the prevalence of contagious disease, and keep them closed for a time, the teacher continuing ready to perform his contract, he is entitled to full wages during such period.² Wages have been recovered by a teacher who stipulated in the contract of employment that she would not instruct certain children in the district,³ and by a teacher who was obliged to give up her school because the committee insisted on her allowing a disobedient and unmanageable boy to attend.⁴ The court said: "The teacher could not perform the duties of her employment without maintaining proper and necessary discipline in the school, and when all her other means for doing so failed in respect to the boy it was her right, and might be her duty, to expel him, to save the rest of the school from being injured by his presence. It was not the duty of the teacher, under the contract, to teach the school without maintaining proper and necessary discipline in it; and if the committee insisted that she should have the boy there, when she could not have him there and have the discipline too, it was equivalent to insisting that she should teach the school without the discipline, which she was not bound to do."

§ 56. *Dismissal.*—If a teacher in a public school, although employed for a definite time, fails to perform the obligations resting upon him, he has broken the agreement on his part, and the trustees are clearly authorized to dismiss him from such employment.⁵ When the school law empowers a city board of education to employ teachers and *remove them at pleasure*, the provision enters into and forms a part of the contract with a teacher for his services for a specified period; he may be discharged before its expiration, notwithstanding the terms of his employment.⁶ But where the power of discharge is limited it ought not to be exercised

¹ School District 4 of Marathon v. Gage, 39 Mich., 480.

² Dewey v. Union District of Alpena, 43 Mich., 480.

³ State v. Blain, 36 Ohio St., 429. Johnson, J., dissented.

⁴ Scott v. School District 2 of Fairfax, 46 Vt., 452; *contra*, Parker v. School District, 5 Lea (Tenn.), 525.

⁵ City of Crawfordville v. Hays, 42 Ind., 200; Bays v. State, 6 Nebr., 167.

⁶ Jones v. Nebraska City, 1 Nebr., 176. See § 24, *ante*.

until notice has been given the teacher and proper testimony heard against him.¹ If, at a hearing, he does not object to the sufficiency of the notice, he will not be allowed to do so afterward.² It has been held, generally, that the power to discharge teachers could not be enlarged by stipulations introduced into the contract of hiring.³ A school board in Wisconsin included in such a contract the clause "We reserve the right to close the school at any time if not satisfactory to us." The court, in commenting on it, said:⁴ "We think the good order and usefulness of the schools would be greatly prejudiced by holding that the boards had such power. If the power claimed for the board in this case exists and may be enforced, then the public schools must be taught to suit the whims, caprices, and peculiar notions of the hiring board, and not as the teacher, in the conscientious discharge of his duty, should teach the same."

§ 57. *Same.*—In New York the State superintendent has general supervision and direction of the normal schools, and it is one of his discretionary duties to approve the hiring of teachers for them. It has been decided that these powers do not authorize him to qualify his approval with the words "To continue in force during the pleasure of the board and the superintendent;" for "it is not within the power of the superintendent, by annexing conditions to his approval of the employment, to change the law regulating the discharge of the teachers of these schools."⁵

In Kansas a school district board employed a school teacher, and the contract of employment contained, among others, a stipulation that, if by the inability or neglect of the said A (the teacher) the interests of the school shall suffer, the district board shall have full power to annul this contract after one month's written notice. The court, the chief justice dissenting, held that the stipulation was valid, notwithstanding a clause in the school law providing that the district board in conjunction with the county superintendent may dismiss a teacher for incompetency, cruelty, negligence, or immorality, and that under the contract the school district board might alone, without any formal trial, and not in conjunction with the county superintendent, dismiss the teacher for incompetence and negligence from which the interests of the school suffer. "The object of the statutes," says the court,⁶ "was simply to provide that the school district should not so bind itself by contract that a school teacher could not be discharged at any time by the school board acting in conjunction with the county superintendent, for

¹ *Morley v. Power*, 5 Lea (Tenn.), 691. See § 19, *ante*.

² *Woodbury v. Knox*, 74 Me., 462.

³ *Tripp v. School District*, 50 Wis., 651; *People v. Hyde*, 89 N. Y. App., 11; *Armstrong v. School District*, 28 Kans., 345, Horton, C. J., dissenting.

⁴ *Tripp v. School District*, 50 Wis., 651.

⁵ *People ex rel. Gilmour v. Hyde et al.*, 89 N. Y. App., 11.

⁶ *Armstrong v. School District*, 28 Kans., 345; following *School District v. Colvin*, 10 Kans., 283.

incompetency, cruelty, negligence, or immorality; and it was not intended to prohibit the school board from making other provisions for the discharge of an incompetent, cruel, negligent, or immoral teacher."

§ 58. **Complaints against candidates for teachers' positions.**—A communication made by persons interested in a particular school to the superintendent having jurisdiction over it for the sole purpose of preventing him from issuing a license to teach the school to a particular individual on the ground that he was of bad moral character and wholly unfit to teach and have the care of a district school, is a privileged communication, and was abundantly justified by proof that he was an habitual blasphemer and profane person and an open violator of the Sabbath.¹ The court said:² "We do not think any superintendent would need vindication for being dissatisfied with the moral character of a teacher who has the faults complained of by these parties who opposed the licensing of plaintiff. A superintendent who should subject young children to such influences would be very censurable." The right to remonstrate must not be made the means of gratifying malice and enmity, and inquiry may be made as to the motives and private purposes of petitioners.³

CHAPTER VIII.—ADMINISTRATION.

§ 59. **Rules and regulations.**—Every student upon his admission into an institution of learning impliedly or expressly promises to submit to and be governed by all the necessary and proper rules and regulations which have been or thereafter may be adopted for the government of the institution.⁴ Rules for the good conduct of a school are not invalidated because the board making them (though it must record votes, orders, and proceedings) does not adopt them formally and record them.⁵ Courts will interfere to prevent the enforcement by a school board of any rule which manifestly reaches beyond their sphere of action, and relates to subjects in nowise connected with the management or successful operation of the school, or which is plainly calculated to retard the leading objects of legislation on educational affairs;⁶ or, as another court expressed it, which is found to be unauthorized, against common right, or palpably unreasonable.⁷

§ 60. **Regulations respecting studies.**—Under the power to prescribe necessary rules and regulations for the management and government of schools, directors (or trustees) may require of pupils prompt attendance, diligence in study, proper deportment, and classification with respect to

¹ *Wieman v. Mabee*, 45 Mich., 484.

² *Ibid.*, p. 486.

³ *Van Arsdale v. Lavery*, 69 Pa. St., 103.

⁴ *State ex rel. Stallard v. White et al.*, 82 Ind., 286; s. c., 42 Am. Rep., 496.

⁵ *Russell v. Lynnfield*, 116 Mass., 365.

⁶ *King v. Jefferson City School Board*, 71 Mo., 628; s. c., 36 Am. Rep., 499.

⁷ *State v. White*, 82 Ind., 286; s. c., 42 Am. Rep., 496.

the branches of study they are respectively pursuing, and with respect to proficiency or degree of advancement in those branches.¹ The following quotation is from an exposition of this doctrine in an Illinois case:² "In the performance of their duty in carrying the law into effect the directors may prescribe proper rules and regulations for the government of the schools of their district and enforce them. They may, no doubt, classify the scholars, regulate their studies and their deportment, the hours to be taught, besides the performance of other duties necessary to promote the success and secure the well being of such schools. But all such rules and regulations must be reasonable and calculated to promote the objects of the law: the conferring of such an education [one which includes the branches required by law] upon all, free of charge. The law having conferred upon each child of proper age the right to be taught the enumerated branches, any rule or regulation which, by its enforcement, would tend to hinder or deprive the child of this right cannot be sustained." In Ohio it has been decided that authority to make and enforce all necessary rules and regulations for schools, and to determine "the various studies and parts of studies" in which instruction shall be given in the departments of the schools, included the power in a board of education to adopt a rule that if any pupil, unless excused, should fail to be prepared with a rhetorical exercise at the time appointed he should be immediately suspended.³

§ 61. **Regulations respecting attendance.**—Regulations discriminating against the attendance of a certain class of inhabitants entitled to the privileges of the schools are unauthorized and cannot be sustained.⁴ Rules requiring regularity of attendance are reasonable. Suspension for six half-days' absence in four consecutive weeks has been upheld in Missouri;⁵ for six half-days' absence and two instances of tardiness in the same time, in Iowa;⁶ and for a single day's unexcused absence to attend a religious service, in Vermont.⁷ Judge Beck, in giving the opinion of the court in Iowa, said:⁸ "It requires but little experience in the instruction of children and youth to convince any one that the only means which will assure progress in their studies is to secure their attendance, the application of the powers of their minds to the studies in which they are instructed. Unless the pupil's mind is open to receive instruc-

¹ Trustees of Schools v. People, 87 Ill., 303; s. c., 29 Am. Rep., 55. In Illinois, township high school trustees and district directors have power to adopt and enforce all necessary rules and regulations for the management and government of the schools; to direct what branches of study shall be taught, &c. Rev. Stat. 1880, p. 1377.

² *Rulison v. Post*, 79 Ill., 567, 570. This case and the preceding one decided that a rule compelling a pupil to pursue a study against the will of his father was not reasonable. See § 35, *ante*.

³ *Sewell v. Board of Education of Defiance*, 29 Ohio St., 89.

⁴ *State v. White*, 82 Ind., 278; s. c., 42 Am. Rep., 496. See § 34, *ante*.

⁵ *King v. Jefferson City School Board*, 71 Mo., 628; s. c., 36 Am. Rep., 499.

⁶ *Burdick v. Babcock*, 31 Iowa, 562, Miller, J., dissenting.

⁷ *Ferriter v. Tyler*, 48 Vt., 444; s. c., 21 Am. Rep., 133.

⁸ *Burdick v. Babcock*, 31 Iowa, 566.

tion, vain will be the effort of the teacher to lead him forward in learning. This application of the mind in children is secured by interesting them in their studies. But this cannot be done if they are at school one day and at home the next, if a recitation is omitted or a lesson left unlearned at the whim or convenience of parents. In order to interest a child he must be able to understand the subject in which he is instructed. If he has failed to prepare previous lessons he will not understand the one which the teacher explains to him. If he is required to do double duty, and prepare a previous lesson, omitted in order to make a visit or do an errand at home, with the lesson of the day, he will fail to master them and become discouraged. The inevitable consequence is that his interest flags and he is unable to apply the powers of his mind to the studies before him. The rule requiring constant and prompt attendance is for the good of the pupil and to secure the very objects the law had in view in establishing public schools. It is therefore reasonable and proper.

"In another view it is required by the best interests of all the pupils of the school. Irregular attendance of pupils not only retards their own progress, but interferes with the progress of those pupils who may be regular and prompt. The whole class may be annoyed and hindered by the imperfect recitations of one who has failed to prepare his lessons on account of absence. The class must endure and suffer the blunders, promptings, and reproofs of the irregular pupil, all resulting from failure to prepare lessons which should have been studied when the child's time was occupied by direction of the parent in work or visiting.

"Tardiness, that is, arriving late, is a direct injury to the whole school. The confusion of hurrying to seats, gathering together of books, &c., by tardy ones, at a time when all should be at study, cannot fail to greatly impede the progress of those who are regular and prompt in attendance. The rule requiring prompt and regular attendance is demanded for the good of the whole school."

In the Vermont decision it was said that in case of casual sickness of the scholar; of sickness or death in the family of the scholar; of some impediment, like fire or flood; and in case of various incidents of current life, giving occasion for temporary detention, the enforcement of the penalty of exclusion for unexcused absence would be adjudged to be unauthorized.¹

§ 62. *Same.*—A rule which excludes from school a pupil for failure to pay for injuries accidentally done the school-house is not authorized by a clause permitting suspension of a pupil for a breach of discipline or an offence against good order. The court said:² "The State does not deprive its citizens of their property, or their liberty, or any of their rights except as a punishment for a crime. It would be very harsh and obvi-

¹ *Ferriter v. Tyler*, 48 Vt., 444, 477; s. c., 21 Am. Rep., 133.

² *Perkins v. Directors of Independent School District of West Des Moines*, 56 Iow 476, 479.

ously unjust to deprive a child of education for the reason that through accident and without intention of wrong he destroyed property of the school district. Doubtless a child may be expelled from school as a punishment for breach of discipline or for offences against good morals, but not for innocent acts." A rule that would bar the doors of a school-house against little children, who come a great distance in cold, winter weather, for no other reason than that they are a few minutes tardy, is unreasonable and therefore unlawful.¹

§ 63. **Suspension of pupils in the absence of rules.**—The law governing the suspension of pupils by a teacher in cases where no rule requiring it exists has been clearly stated recently in Wisconsin in an opinion by Judge Lyon, from which the following extended quotation is taken :² "While the principal or teacher in charge of a public school is subordinate to the school board or board of education of his district or city, and must enforce rules and regulations adopted by the board for the government of the school, and execute all its lawful orders in that behalf, he does not derive all his power and authority in the school and over his pupils from the affirmative action of the board. He stands for the time being *in loco parentis* to his pupils, and, because of that relation, he must necessarily exercise authority over them in many things concerning which the board may have remained silent. In the school, as in the family, there exist on the part of the pupils the obligations of obedience to lawful commands, subordination, civil deportment, respect for the rights of other pupils, and fidelity to duty. These obligations are inherent in any proper school system, and constitute, so to speak, the common law of the school. Every pupil is presumed to know this law, and is subject to it whether it has or has not been reenacted by the district board in the form of written rules and regulations. Indeed, it would seem impossible to frame rules which would cover all cases of insubordination and all acts of vicious tendency which the teacher is liable to encounter daily and hourly.

"The teacher is responsible for the discipline of his school and for the progress, conduct, and deportment of his pupils. It is his imperative duty to maintain good order and to require of his pupils a faithful performance of their duties. If he fails in this he is unfit for his position. To enable him to discharge these duties effectually he must necessarily have the power to enforce prompt obedience to his lawful commands. For this reason the law gives him the power, in proper cases, to inflict corporal punishment upon refractory pupils. But there are cases of misconduct for which such punishment is an inadequate remedy. If the offender is incorrigible, suspension or expulsion is the only adequate remedy. In general, no doubt, the teacher should report a case of that kind to the proper board for its action in the first instance, if no delay

¹ Thompson v. Beaver, 63 Ill., 353, 357.

² State v. Burton, 45 Wis., 150, 155; s. c., 30 Am. Rep., 706. See, also, Parker v. School District, 5 Lea (Tenn.), 528.

will necessarily result from that course prejudicial to the best interests of the school. But the conduct of the recusant pupil may be such that his presence in the school for a day or an hour may be disastrous to the discipline of the school and even to the morals of the other pupils. In such a case it seems absolutely essential to the welfare of the school that the teacher should have the power to suspend the offender at once from the privileges of the school; and he must necessarily decide for himself whether the case requires that remedy."

§ 64. *Same.*—Persons having the general charge and superintendence of public schools have power to exclude a child for sufficient cause, as, for example, that his conduct, not in violation of prescribed rules, tended to injure the discipline and impair the usefulness of the school.¹ The view that acts, to be within the authority of the school board and teachers for discipline and correction, must be done within school hours is narrow and without regard to the spirit of the law and the best interest of common schools.² But the publication of an article ridiculing school officers and tending to create insubordination in a school cannot be punished by the expulsion of the offender, when the statute only authorizes dismissals for gross immorality and persistent violation of school regulations.³ If a person would recover damages for exclusion from a school he must first appeal to school officers who have authority to reinstate him,⁴ if there be such, and, if the case come to trial, prove the action of the officers excluding him to have been wanton and malicious.⁵

§ 65. *Corporal punishment.*—In the absence of statutory enactments, the authorities upon the right of a teacher to inflict reasonable chastisement upon a pupil are not numerous, but they are sufficient to prove its existence.⁶ The law is well settled that the teacher has the right to exact from his pupils obedience to his lawful and reasonable commands, and to punish disobedience, with "kindness, prudence, and propriety."⁷ Any punishment with a rod which leaves marks

¹ *Hodgkins v. Rockport*, 105 Mass., 475.

² *Burdick v. Babcock*, 31 Iowa, 567. See *Lander v. Seaver*, 32 Vt., 114; and § 36, *note, ante*.

³ *Murphy v. Board of Directors of Independent District of Marengo*, 30 Iowa, 429.

⁴ *Davis v. Boston*, 133 Mass., 103.

⁵ *McCormick v. Burt*, 95 Ill., 263; s. c., 35 Am. Rep., 163.

⁶ *State v. Mizner*, 45 Iowa, 248.

⁷ *Danenhoffer v. State*, 69 Ind., 295; s. c., 35 Am. Rep., 216. In the case of *Lander v. Seaver*, 32 Vt., 114, it was decided that a schoolmaster is not relieved from liability in damages for the punishment of a scholar which is clearly excessive and unnecessary by the fact that he acted in good faith and without malice, honestly thinking that the punishment was necessary, both for the discipline of the school and the welfare of the scholar. In *Commonwealth v. Seed*, 5 Pa. L. Jour. Rep., 78, Judge Parson said: "The law does not permit a court to invade the sanctuary of the domestic circle and usurp the parental authority in every family because we may think the punishment is severe. It is only when from the surrounding circumstances of the case there is strong reason to believe that the parent has been actuated by bad and malevolent motives, using his legal parental authority for the gratification of a mind

and welts on the person of the pupil for two months afterward, or much less time, is immoderate and excessive.¹ Proof that the punishment was for an insufficient cause or in an unreasonable manner will be received to rebut the presumption to the contrary. In no case can the punishment be justifiable unless it is inflicted for some definite offence which the pupil has committed and the pupil is given to understand why he is punished. "Punishment inflicted when the reason of it is unknown to the punished is subversive, and not promotive, of the true objects of punishment." It must not be inflicted for obedience to the lawful directions of a parent.² The authority to chastise extends to a pupil who has attained his majority; for by voluntarily attending school he waives any privilege and submits himself to like discipline with those that are within school age.³ A member of a school committee may eject a pupil from the school-house for insulting conduct toward him. This was decided in a Connecticut case, stated by the judge in his opinion, as follows: ⁴ "The defendant, being at the school-house performing certain duties connected with the school, called the attention of the plaintiff to certain acts, not specially culpable in character, which he acknowledged he had committed. His bearing and manner were insolent and offensive, and the language in which he indulged was grossly profane. Such language, reprehensible at all times, should not have been allowed to pass with impunity from a school boy of the older class, within the walls of a school-house, in the presence and hearing of younger pupils. After being told to leave, he so conducted that it was proper to remove him, no unnecessary force being used to attain that object."

bent on mischief, that the law has given the court the right to interpose for the protection and safety of the child. Such is the rule relative to the school teacher, whom the parent, for the time being, has placed in his stead." See, also, *Burke's Law of Public Schools*, pp. 119-132.

¹ *State v. Mizner*, 50 Iowa, 145, 149; s. c., 32 Am. Rep., 123.

² *Morrow v. Wood*, 35 Wis., 59; s. c., 17 Am. Rep., 471.

³ *State v. Mizner*, 45 Iowa, 243, 250; s. c., 34 Am. Rep., 769.

⁴ *Peck v. Smith*, 41 Conn., 442, 445.

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